



individualized
computation

d_2



Cover Art

The Learning Community Alternative School of Ron Slayen
and Joyce Vandevere at Del Rey Woods School.

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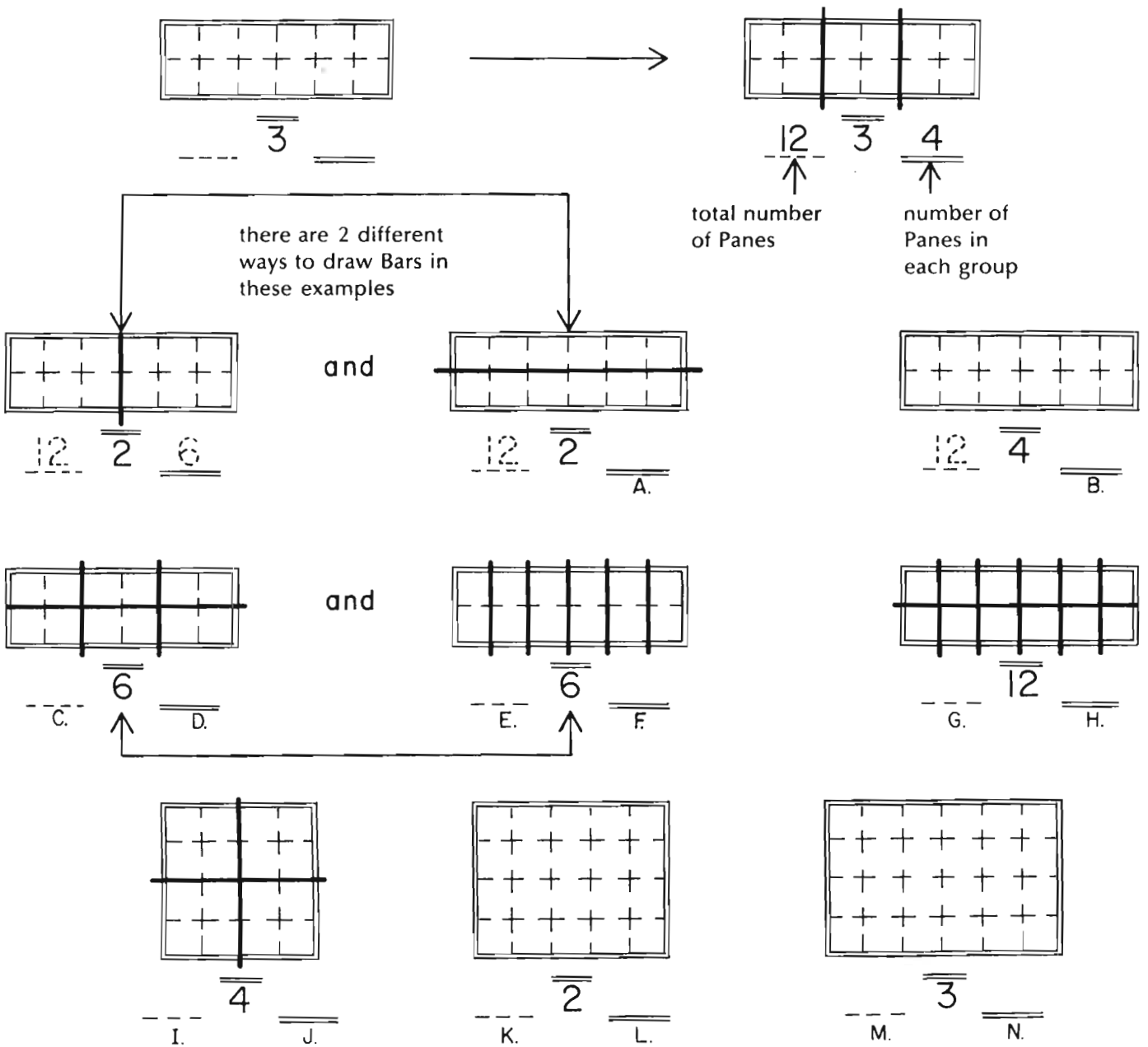
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WINDOWS and PANES . . . and Bars

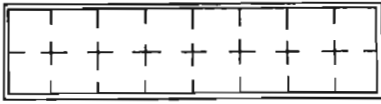
"3"
3 . . . can be read "Bar three".

It means: draw Bars on the Windows so the Panes are divided into 3 groups with the same number of Panes in each group. Then report the number in each group.

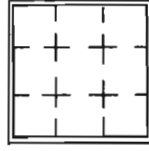


N.	A.	F.	J.	B.	G.	K.	C.	H.	L.	D.	I.	M.	E.
8	5	3	4	3	12	20	10	1	10	2	20	21	12
7	6	2	8	4	14	24	12	10	8	4	16	24	16

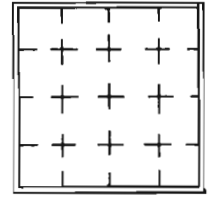
More "WINDOWS and PANES" . . . and Bars



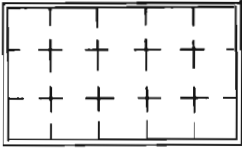
$$\frac{16}{\text{A.}} \overline{\overline{2}}$$



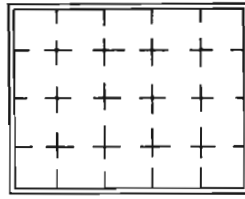
$$\frac{\text{B.}}{\text{C.}} \overline{\overline{3}}$$



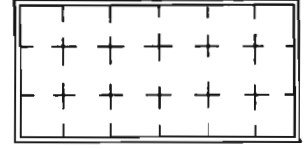
$$\frac{\text{D.}}{\text{E.}} \overline{\overline{2}}$$



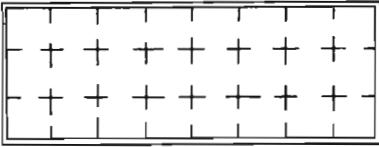
$$\frac{\text{F.}}{\text{G.}} \overline{\overline{3}}$$



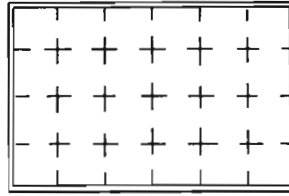
$$\frac{\text{H.}}{\text{I.}} \overline{\overline{2}}$$



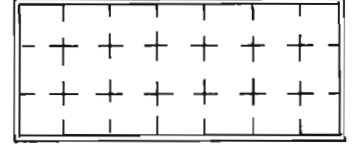
$$\frac{\text{J.}}{\text{K.}} \overline{\overline{3}}$$



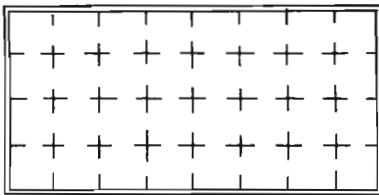
$$\frac{\text{A.}}{\text{B.}} \overline{\overline{4}}$$



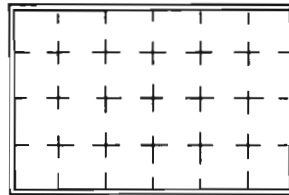
$$\frac{\text{H.}}{\text{J.}} \overline{\overline{3}}$$



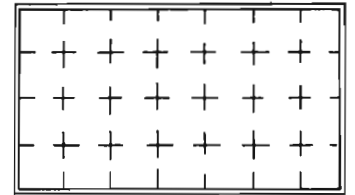
$$\frac{\text{E.}}{\text{F.}} \overline{\overline{3}}$$



$$\frac{\text{G.}}{\text{H.}} \overline{\overline{2}}$$



$$\frac{\text{I.}}{\text{K.}} \overline{\overline{4}}$$



$$\frac{\text{I.}}{\text{G.}} \overline{\overline{2}}$$

	A.	B.	C.	D.	E.	F.	G.	H.
I.	24	9	10	28	8	8	32	24
J.	8	6	24	16	18	7	5	20
K.	6	8	3	8	21	15	14	16

"WINDOWS and PANES" . . . and Bars . . . Tags from Beanstick-Rafts

A. $\overline{4}$ $\overline{4}$

D. $\overline{2}$ $\overline{C.}$

G. $\overline{4}$ $\overline{F.}$

J. $\overline{5}$ $\overline{I.}$

M. $\overline{4}$ $\overline{L.}$

B. $\overline{5}$ $\overline{A.}$

E. $\overline{5}$ $\overline{D.}$

H. $\overline{2}$ $\overline{N.}$

K. $\overline{3}$ $\overline{J.}$

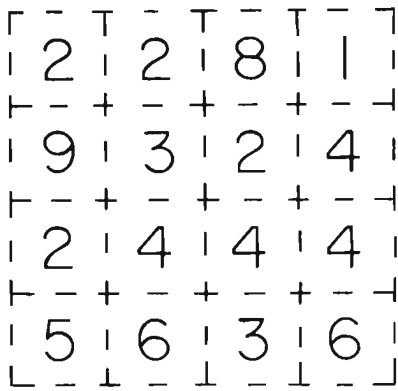
N. $\overline{3}$ $\overline{M.}$

I. $\overline{2}$ $\overline{N.}$

N. $\overline{4}$ $\overline{C.}$

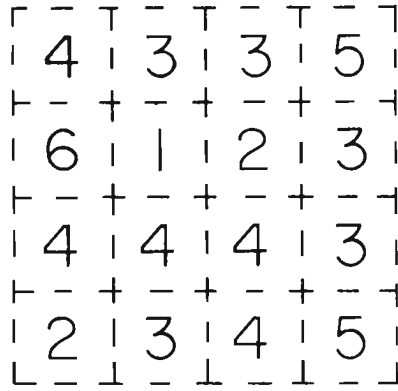
	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.
L.	12	20	20	4	24	5	36	30	17	15	30
M.	5	25	10	12	20	30	24	23	3	10	20
N.	16	25	9	20	19	6	15	15	30	25	36

FENCE ARITHMETIC



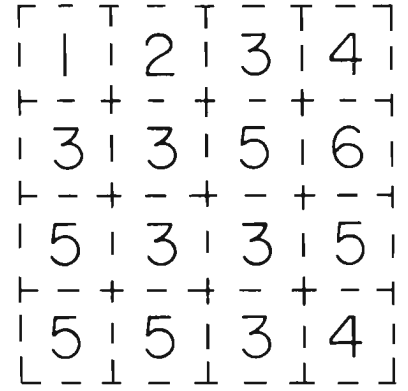
13's

A. Total B.



14's

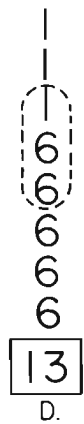
C. Total A.



15's

I. Total C.

LOOP ARITHMETIC



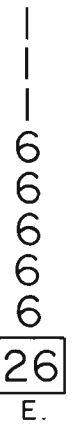
D.



E.



D.



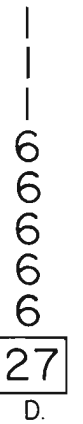
E.



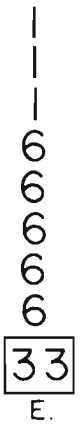
D.



E.

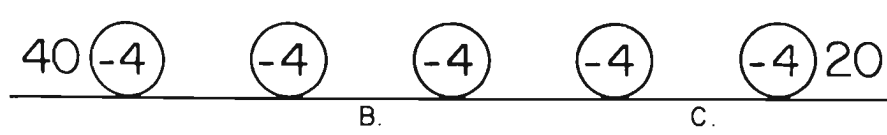
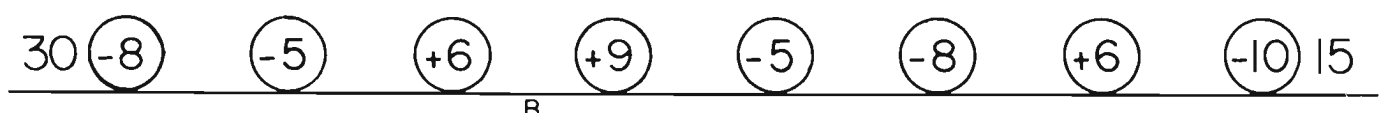
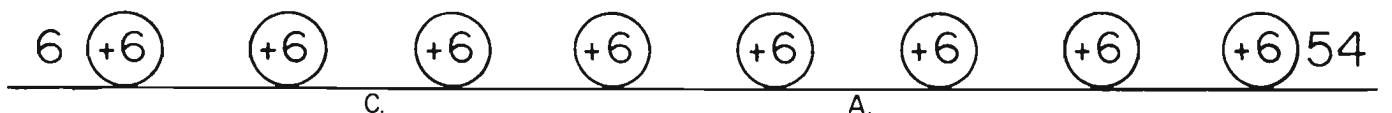
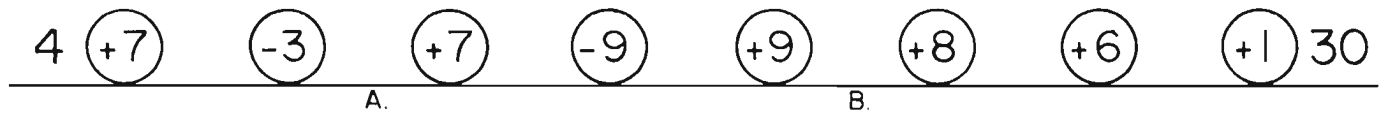


D.



E.

CHAIN REACTIONS



	A.	B.	C.	D.	E.
F.	56	15	24	6,6,6	1,1,1,6
G.	5	23	60	1,1,6,6,6	6,6,6,6,6
H.	8	65	18	1,6,6	1,1,1,6,6,6,6
I.	36	32	4	1,1,1,6,6,6,6	1,1,6,6,6,6

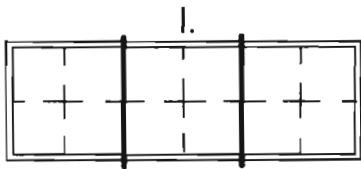
WINDOWS and PANES . . . Bars and Shading

1. Use bars to make 3 groups

$$\frac{2}{3}$$

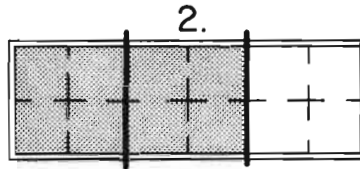
2. Shade this number of those groups

3. Report the number of panes Shaded



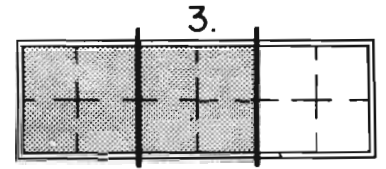
$$\underline{12} \quad \frac{2}{3} \quad \underline{\quad}$$

1. "Bar Three"



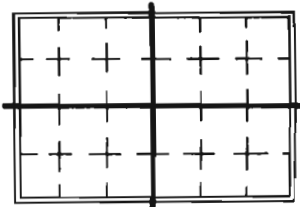
$$\underline{12} \quad \frac{2}{3} \quad \underline{\quad}$$

2. Shade 2 groups



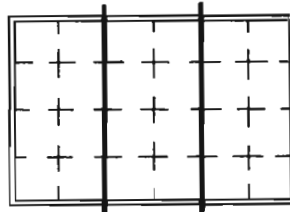
$$\underline{12} \quad \frac{2}{3} \quad \underline{8}$$

3. Report panes shaded



$$\underline{24} \quad \frac{1}{4} \quad \underline{\quad}$$

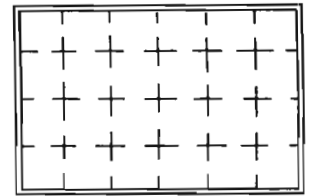
A.



$$\underline{\quad} \quad \frac{2}{3} \quad \underline{\quad}$$

B.

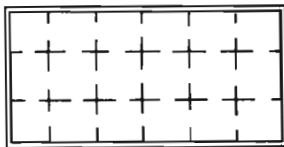
C.



$$\underline{\quad} \quad \frac{3}{6} \quad \underline{\quad}$$

D.

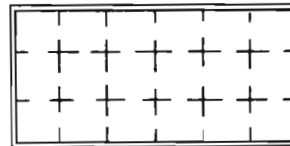
E.



$$\underline{\quad} \quad \frac{1}{2} \quad \underline{\quad}$$

F.

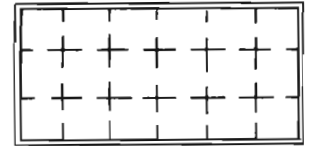
G.



$$\underline{\quad} \quad \frac{1}{3} \quad \underline{\quad}$$

H.

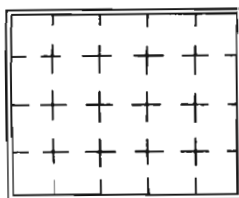
I.



$$\underline{\quad} \quad \frac{2}{6} \quad \underline{\quad}$$

J.

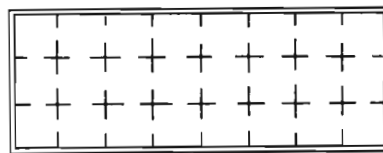
A.



$$\underline{\quad} \quad \frac{3}{4} \quad \underline{\quad}$$

B.

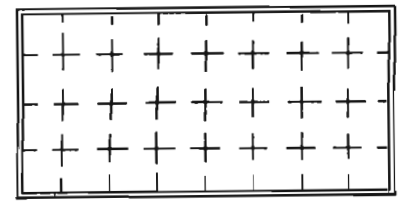
C.



$$\underline{\quad} \quad \frac{2}{3} \quad \underline{\quad}$$

D.

E.



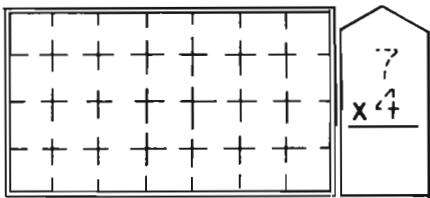
$$\underline{\quad} \quad \frac{2}{4} \quad \underline{\quad}$$

F.

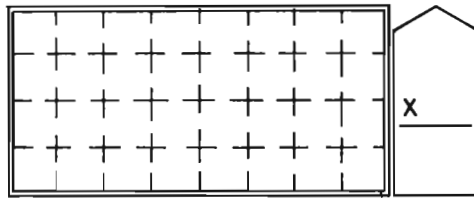
G.

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
6	24	15	19	12	32	16	18	8	18
4	20	16	24	16	18	9	20	6	24

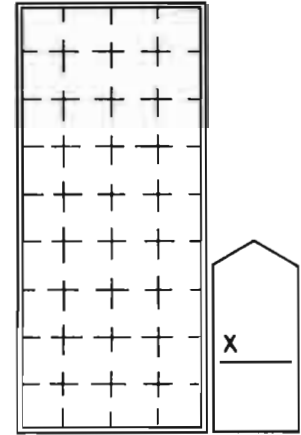
WINDOWS and PANES . . . Bars and Shading and Tags



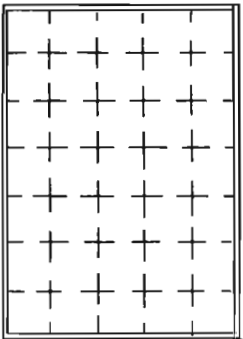
$$\frac{28}{4} = \frac{1}{A}$$



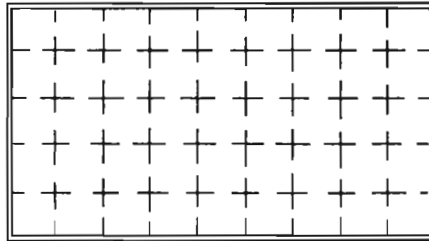
$$\frac{2}{4} = \frac{B}{C}$$



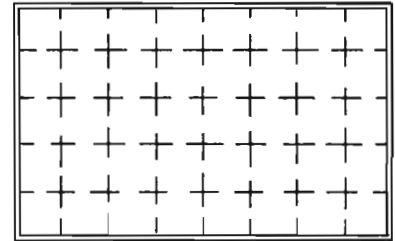
$$\frac{3}{6} = \frac{D}{E}$$



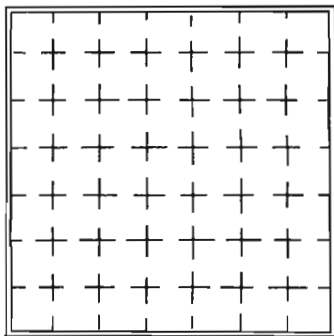
$$\frac{3}{5} = \frac{F}{G}$$



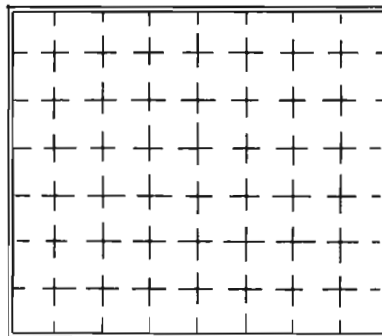
$$\frac{2}{3} = \frac{H}{I}$$



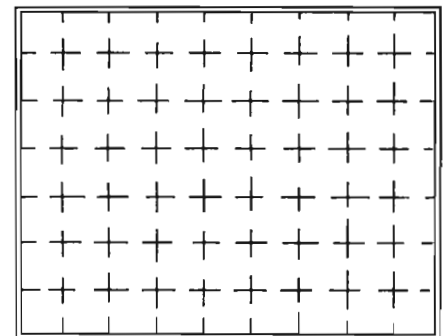
$$\frac{3}{4} = \frac{A}{B}$$



$$\frac{4}{7} = \frac{C}{D}$$



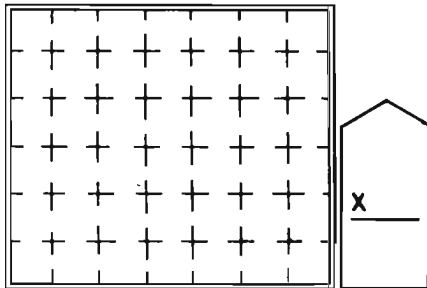
$$\frac{2}{4} = \frac{E}{F}$$



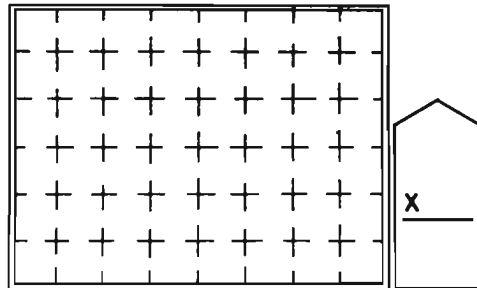
$$\frac{1}{3} = \frac{G}{H}$$

A.	B.	C.	D.	E.	F.	G.	H.	I.
7	30	49	36	6	28	21	45	32
40	32	16	28	56	35	63	21	30

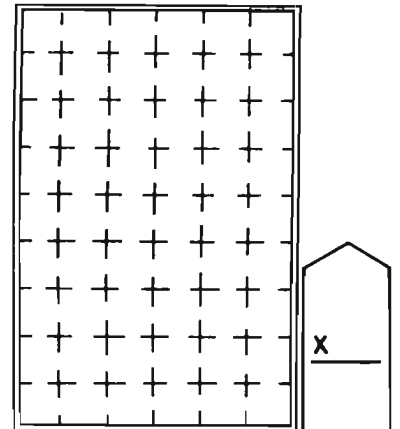
WINDOWS and PANES . . . Bars and Shading and Tags



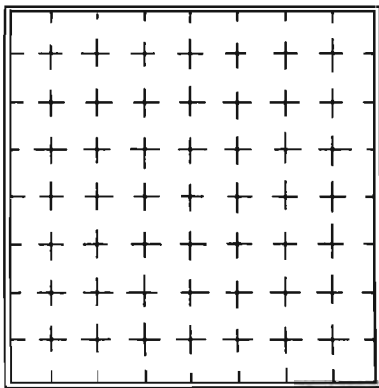
$\frac{1}{3}$
 A. B.



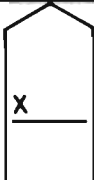
$\frac{3}{4}$
 C. D.

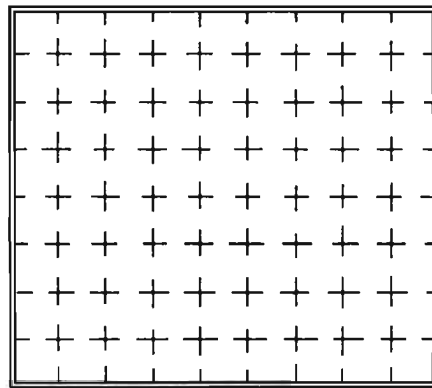


$\frac{1}{3}$
 E. F.

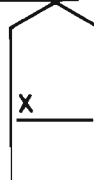


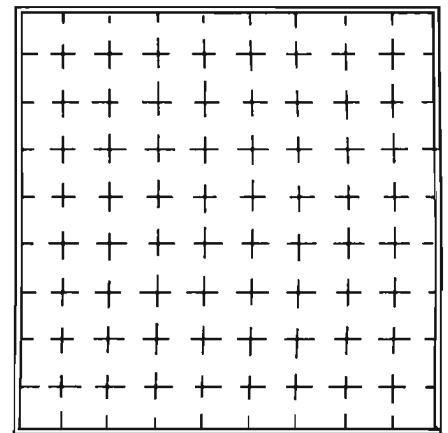
$\frac{1}{4}$
 G. A.



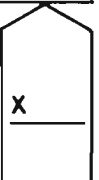


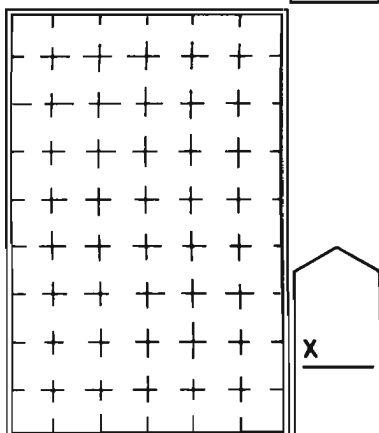
$\frac{1}{2}$
 B. D.



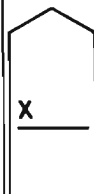


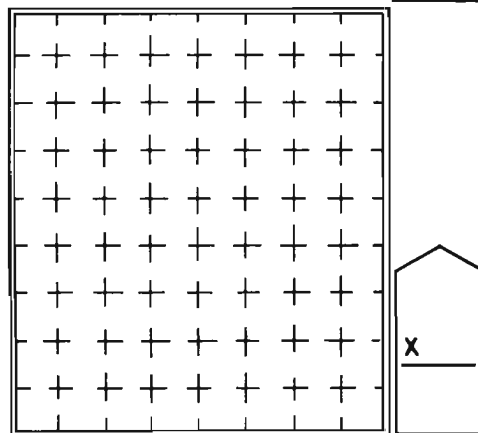
$\frac{1}{3}$
 C. D.



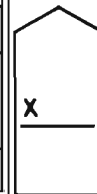


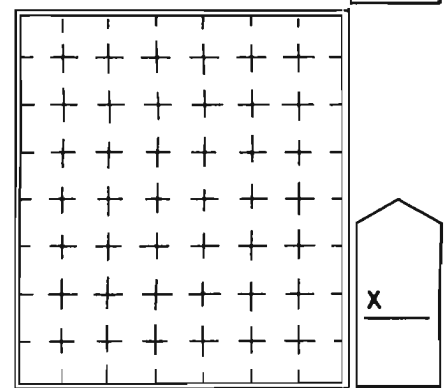
$\frac{4}{6}$
 E. D.



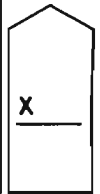


$\frac{2}{3}$
 F. C.





$\frac{3}{4}$
 G. E.



A.	B.	C.	D.	E.	F.	G.
42	72	81	36	42	18	64
16	14	48	27	54	72	56

FENCE ARITHMETIC

4	1	7	5
3	6	2	3
4	5	1	2
5	5	5	6

3	1	3	6
3	2	7	4
5	4	5	5
4	8	2	6

4	3	4	2
5	6	2	3
3	4	7	6
5	7	5	6

16's

A. B.
Total

17's

----- C.
Total

18's

Total

LOOP ARITHMETIC

3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
9	12	11	18	17	29	26	21
D.	E.	F.		G.		H.	

CHAIN REACTIONS

15	+3	+4	+5	+6	+7	+8	+9	+10	67
F.				C.					
60	-6	-6	-6	-6	-6	-6	-6	-6	
H.				B.					
50	-9	-8	-7	-6	-5	-4	-3	-2	6
G.									
9	+9	+9	+9	+9	+9	+9	+9	+9	54
H.									

	A.	B.	C.	D.	E.
F.	22	30	40	3,4,4	4,4,4
G.	4	26	68	9	3,3,3,4,4
H.	48	64	45	3,3,3	3,3,4,4,4,4,4

ANOTHER WAY TO REPORT

Windows and Panes . . . Bars and Shading

"1/2" can be read "one half"

"1/4" or "one fourth"

"1/5" or "one fifth"

"1/3" can be read "one third"

"2/4" or "two fourths"

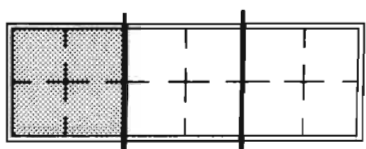
"3/8" or "three eighths"

"2/3" can be read "two thirds"

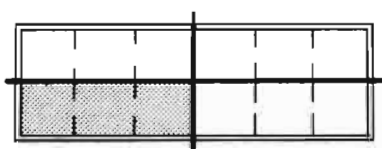
"3/4" or "three fourths"

"7/9" or "seven ninths"

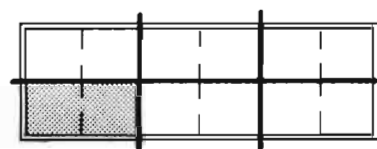
Etc.



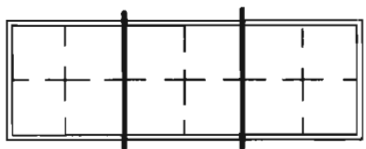
$\frac{1}{3}$ of 12 is A.



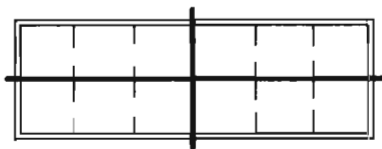
$\frac{1}{4}$ of 12 is B.



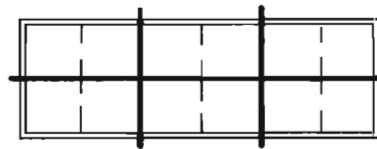
$\frac{1}{6}$ of 12 is C.



$\frac{2}{3}$ of 12 is D.



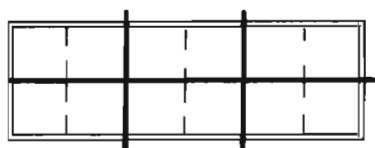
$\frac{3}{4}$ of --- is E.



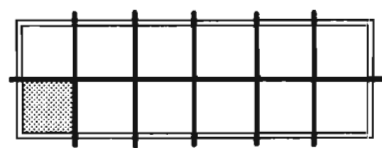
$\frac{2}{6}$ of --- is F.

IN SHORT-HAND

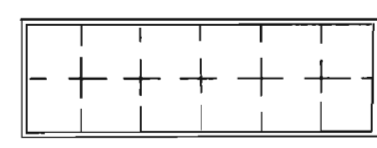
The idea of "1/2 of 12 is 6" can be written " $\frac{1}{2} \times 12 = 6$ "



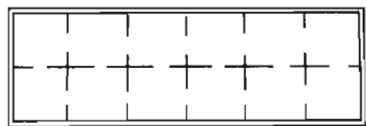
$\frac{4}{6}$ x 12 = A.



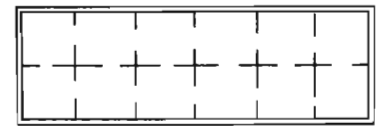
$\frac{1}{12}$ x 12 = B.



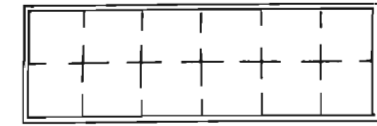
$\frac{6}{12}$ x 12 = C.



$\frac{1}{2}$ x --- = D.



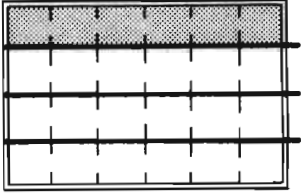
$\frac{2}{4}$ x --- = E.



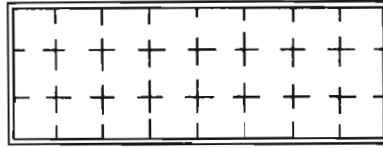
$\frac{3}{6}$ x --- = F.

	A.	B.	C.	D.	E.
F.	4	1	2	6	9
G.	8	3	6	8	6

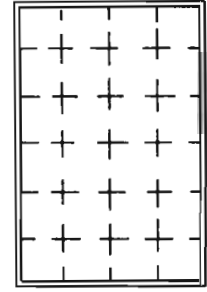
WINDOWS and PANES . . . Bars and Shading



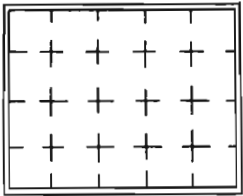
$$\frac{1}{4} \times \text{A.} = \text{B.}$$



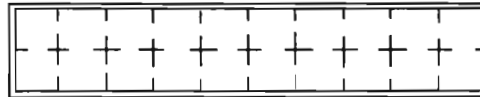
$$\frac{2}{4} \times \text{F.} = \text{D.}$$



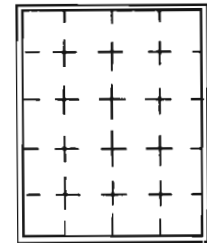
$$\frac{3}{4} \times \text{A.} = \text{B.}$$



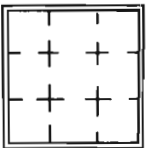
$$\frac{1}{5} \times \text{---} = \text{C.}$$



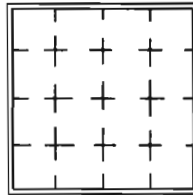
$$\frac{2}{5} \times \text{---} = \text{E.}$$



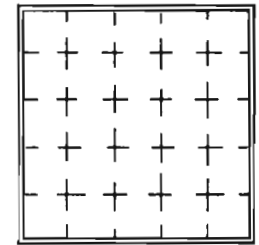
$$\frac{3}{5} \times \text{---} = \text{D.}$$



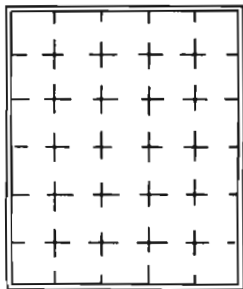
$$\frac{2}{3} \times \text{---} = \text{B.}$$



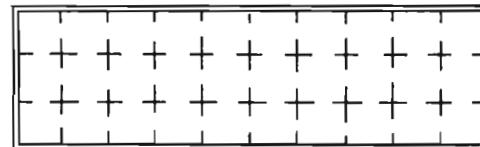
$$\frac{3}{4} \times \text{---} = \text{F.}$$



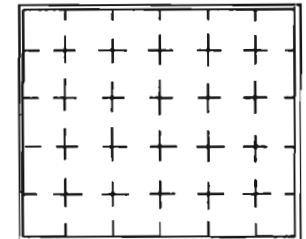
$$\frac{4}{5} \times \text{---} = \text{E.}$$



$$\frac{1}{2} \times \text{---} = \text{C.}$$



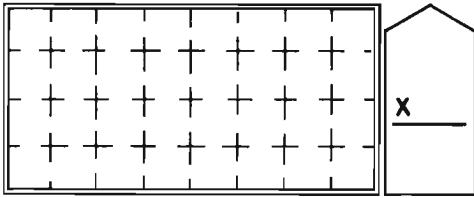
$$\frac{3}{6} \times \text{---} = \text{E.}$$



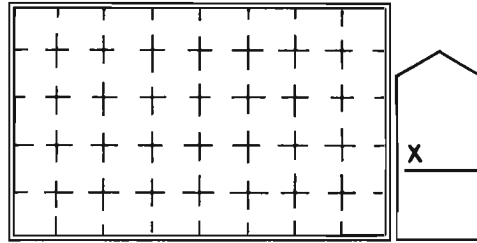
$$\frac{5}{10} \times \text{---} = \text{C.}$$

	A.	B.	C.	D.
E.	20	6	15	8
F.	24	18	4	12

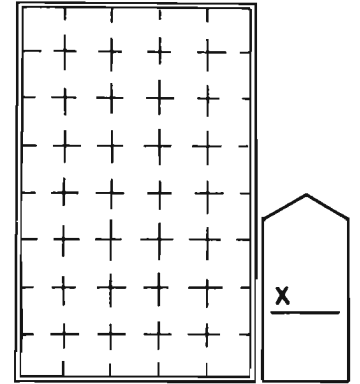
WINDOWS and PANES . . . Tags . . . Bars and Shading



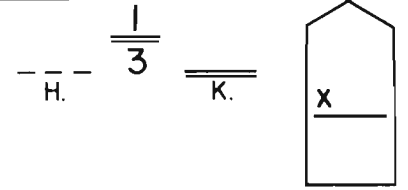
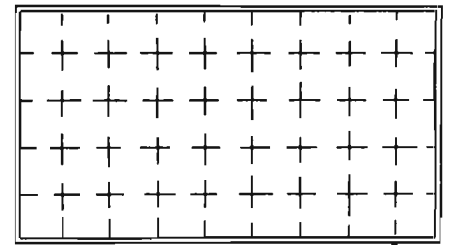
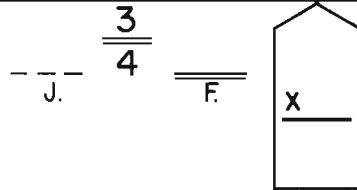
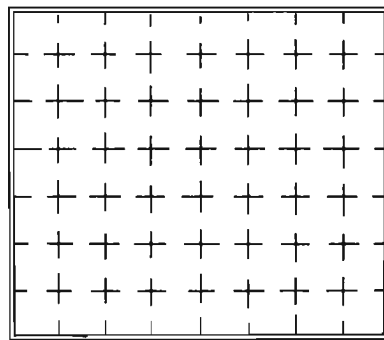
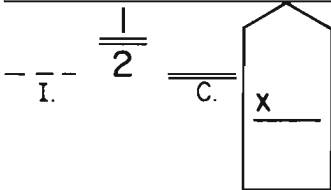
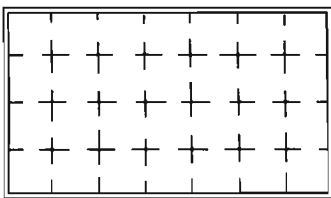
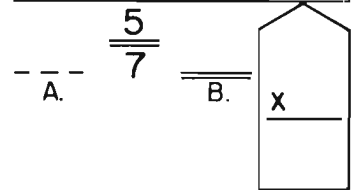
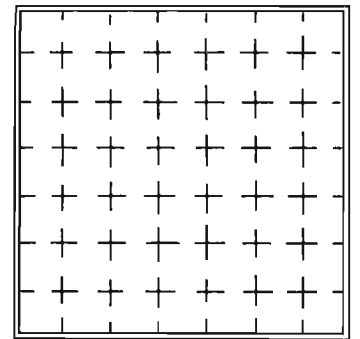
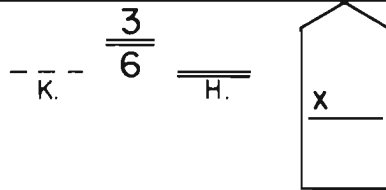
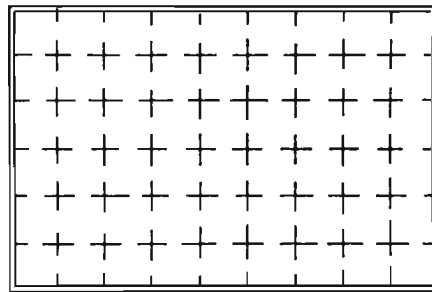
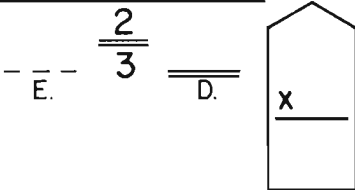
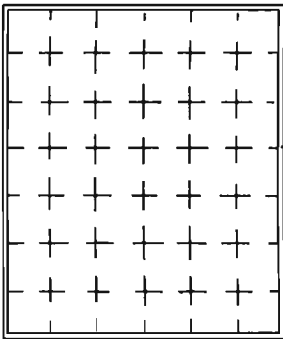
-- A. $\frac{3}{4}$ -- B.



-- C. $\frac{2}{5}$ -- D.

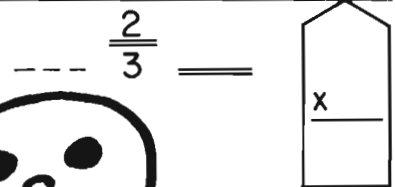
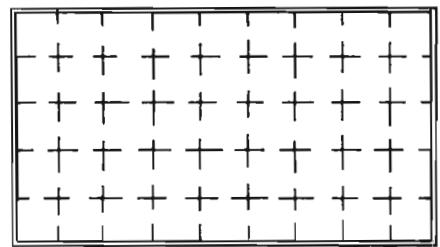
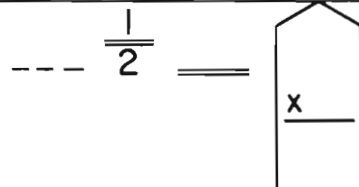
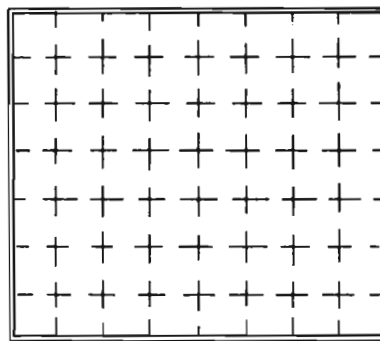
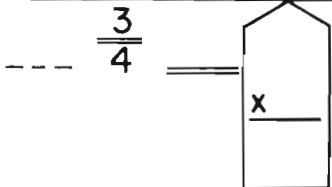
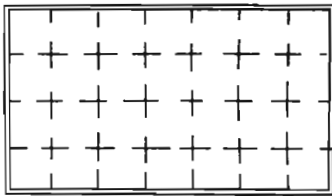
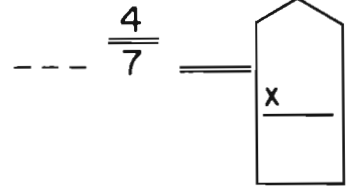
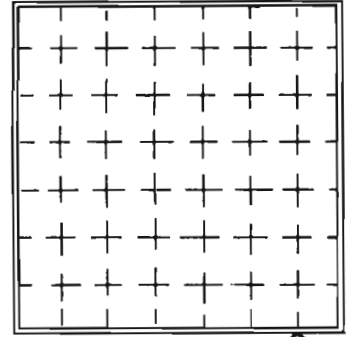
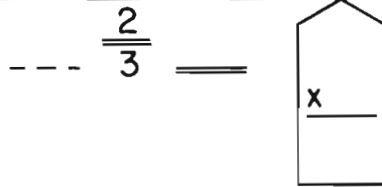
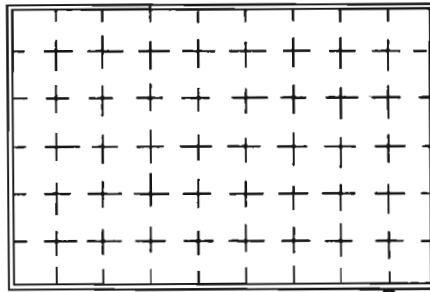
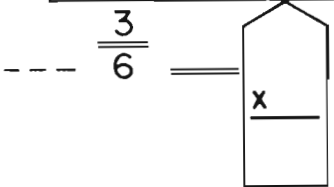
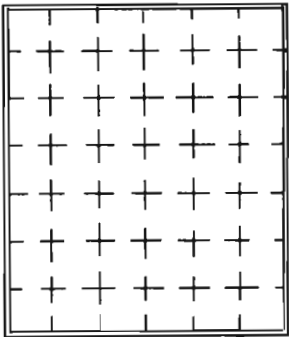
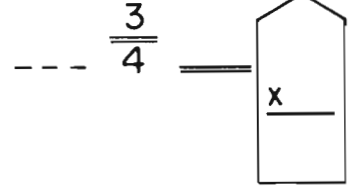
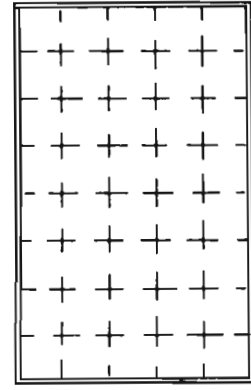
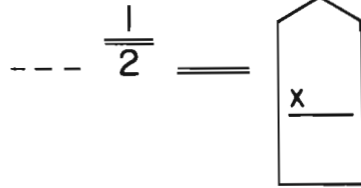
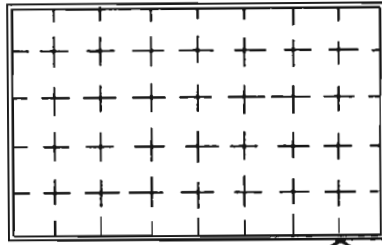
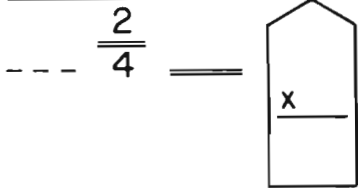
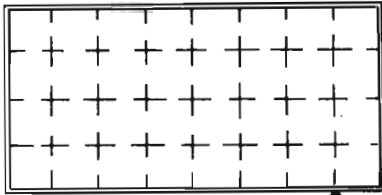


-- C. $\frac{1}{2}$ -- E.

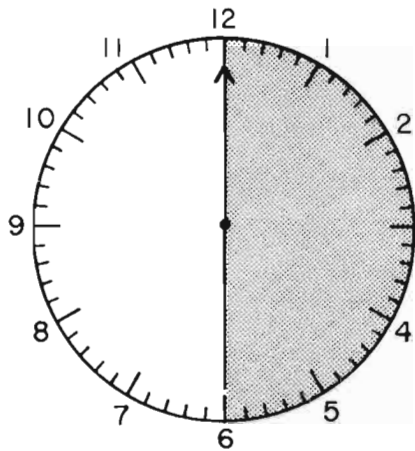


A.	E.	I.	B.	F.	J.	C.	G.	K.	D.	H.
32	40	35	24	20	14	40	18	15	16	27
49	42	28	35	42	56	14	27	54	28	45

WINDOWS and PANES . . . Tags . . . Bars and Shading



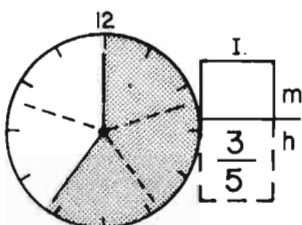
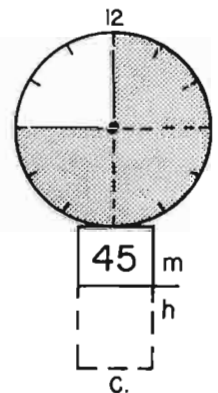
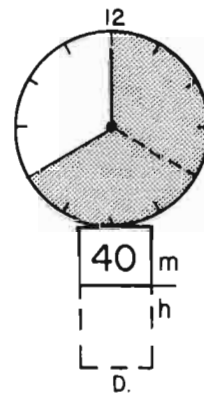
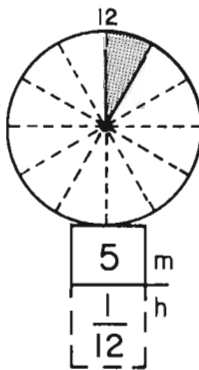
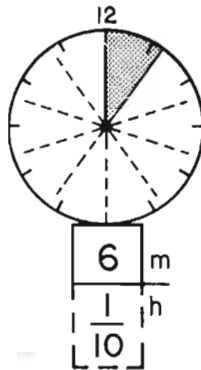
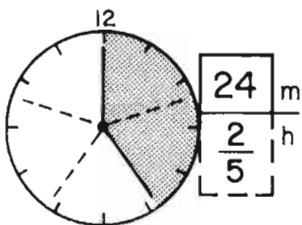
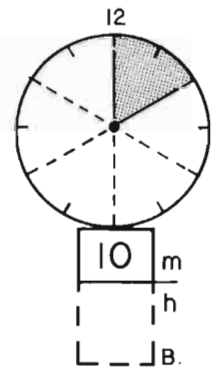
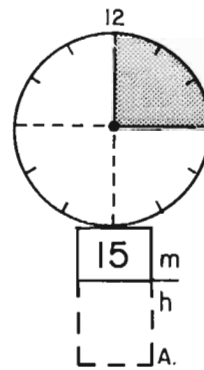
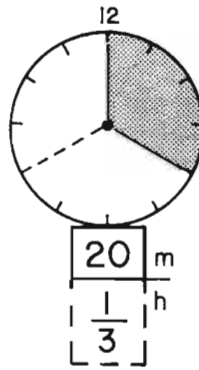
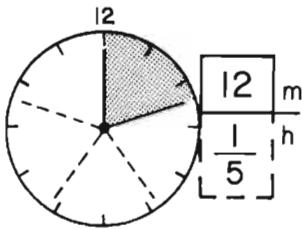
How do you feel?



30 minutes
 $\frac{1}{2}$ hours

"DOUBLE - TALK" . . . in $\frac{\text{Minutes (M)}}{\text{Hours (H)}}$

1 Hour = 60 Minutes



"One-half hour" is the same as "30 minutes"

$\frac{1}{2}$ hour = $\frac{\text{K}}$ minutes

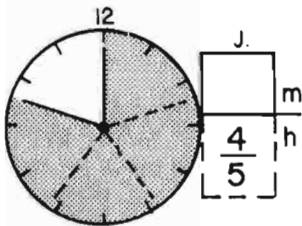
$\frac{1}{4}$ hour = $\frac{\text{L}}$ minutes

$\frac{1}{3}$ hour = $\frac{\text{M}}$ minutes

$\frac{3}{4}$ hour = $\frac{\text{N}}$ minutes

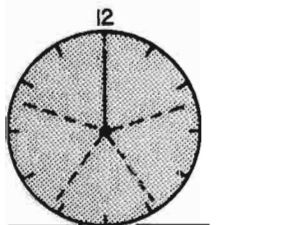
$\frac{2}{3}$ hour = $\frac{\text{O}}$ minutes

$\frac{1}{5}$ hour = $\frac{\text{P}}$ minutes



$\frac{20}{3}$ h + $\frac{10}{6}$ h = $\frac{\text{Q}}$ h

$\frac{45}{4}$ h - $\frac{15}{4}$ h = $\frac{\text{R}}$ h



20 min. + 10 min. = 30 min.

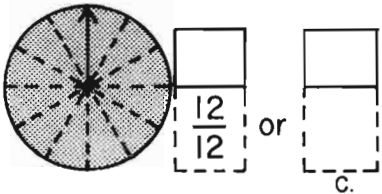
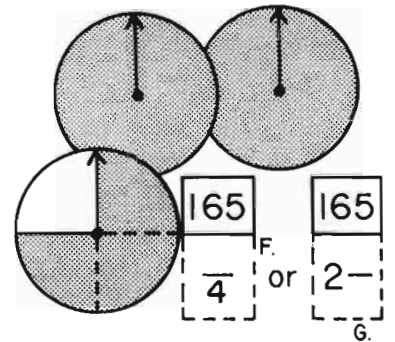
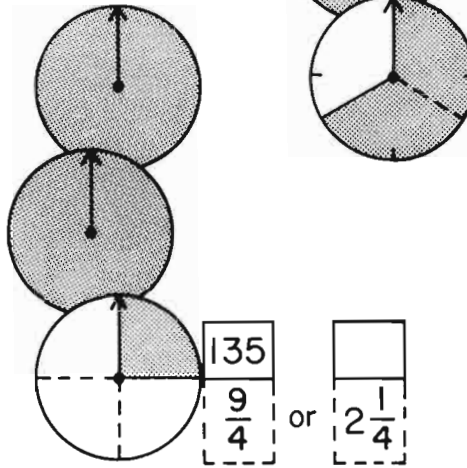
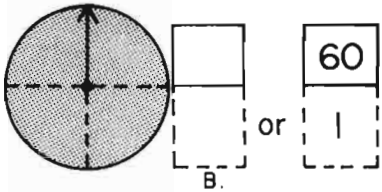
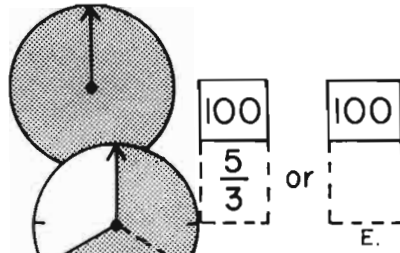
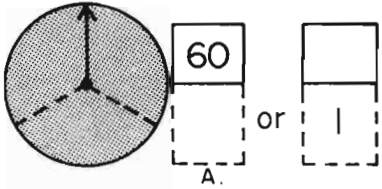
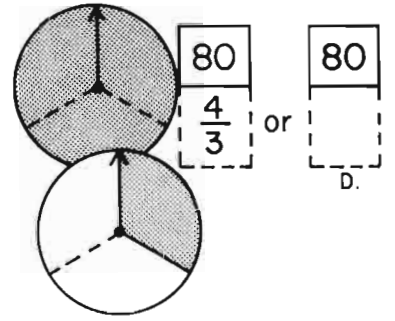
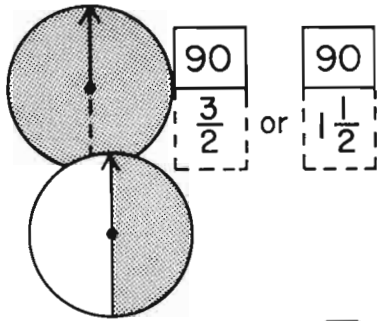
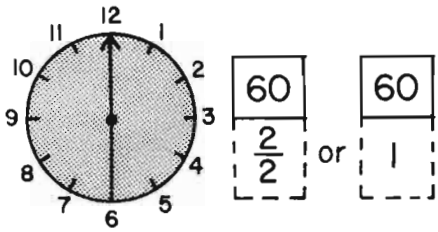
45 min. - 15 min. = 30 min.

$\frac{1}{3}$ hr. + $\frac{1}{6}$ hr. = $\frac{1}{2}$ hr.

$\frac{3}{4}$ hr. - $\frac{1}{4}$ hr. = $\frac{\text{R}}$ hr.

60 m
 $\frac{5}{5}$ h or $\frac{1}{1}$ h

A.	G.	M.	B.	H.	N.	C.	I.	O.	D.	J.	P.	E.	K.	Q.	F.	L.	R.
$\frac{1}{4}$	10	45	$\frac{1}{6}$	15	30	$\frac{3}{4}$	36	$\frac{1}{2}$	$\frac{2}{3}$	48	$\frac{1}{4}$	12	30	$\frac{1}{2}$	18	15	$\frac{1}{2}$



minutes	60	30	15	45	20	40	10	12	N.	36	48	O.	
hours	1	1/2							2/5			1/2	1/3
			H.	I.	J.	K.	L.	M.					

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{30}{\quad} + \frac{15}{\quad} = \frac{\quad}{\quad}$$

P. Q. R.

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{10}{\quad} + \frac{10}{\quad} = \frac{\quad}{\quad}$$

S.

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{45}{\quad} + \frac{45}{\quad} = \frac{\quad}{\quad}$$

T. U.

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{30}{\quad} - \frac{20}{\quad} = \frac{10}{\quad}$$

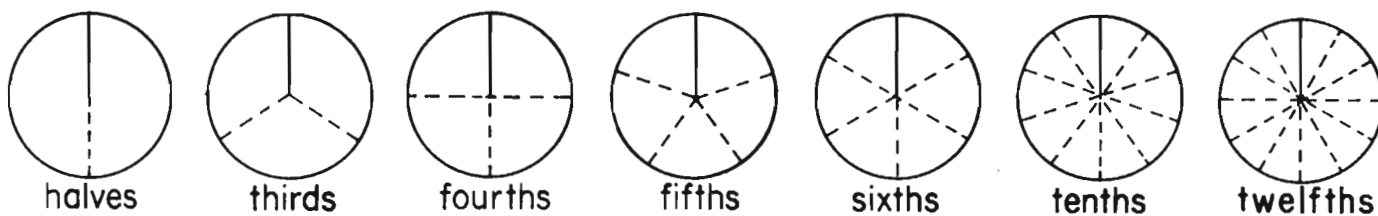
V.

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{60}{\quad} - \frac{12}{\quad} = \frac{\quad}{\quad}$$

W. X.

$$\begin{array}{r} \text{m} \\ \text{h} \end{array} \frac{80}{\quad} - \frac{40}{\quad} = \frac{\quad}{\quad}$$

A.	G.	M.	S.	B.	H.	N.	T.	C.	I.	O.	U.	D.	J.	P.	V.	E.	K.	Q.	W.	F.	L.	R.	X.
3/3	2 3/4	1/5	1/3	4/4	1/4	24	90	1	3/4	90	1 1/2	1/3	1/3	1/2	1/6	1 2/3	2/3	1/4	1	11/4	1/6	3/4	1/5



m	30	60	90	
h	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{4}{2}$

m	20	40		
h	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{3}$	$\frac{4}{3}$

m	15			
h	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$

Please extend the patterns.

m	12	24				72
h	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$			

A.

m	10	20					70
h	$\frac{1}{6}$	$\frac{2}{6}$				$\frac{6}{6}$	

B.

m	6	12	18	24		36							84
h	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$										

C. D. E. F. G. H.

m	5	10		20					45					70
h	$\frac{1}{12}$	$\frac{2}{12}$	$\frac{3}{12}$											

I.

There are different ways to talk about the same number of minutes.

m	60	60	60	60	60	60	60
h							

m	20	20	20
h			

m	48	48
h		

m	30	30	30	30	30
h					

m	40	40	40
h			

m	15	15
h		

m	50	50
h		

A.	B.	C.	D.	E.	F.	G.	H.	I.
$\frac{5}{5}$	$\frac{3}{6}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{10}{10}$	$\frac{11}{10}$	$\frac{12}{10}$	$\frac{14}{10}$	$\frac{14}{12}$

minutes	60	30	20	40	15	45	12	24	36	48	10	50
hours	$\frac{1}{1}$	$\frac{1}{2}$						$\frac{2}{5}$				
			A.		B.		C.				D.	

m	6	18			5	25	35				75		72	84
h		$\frac{3}{10}$	$\frac{7}{10}$	$\frac{9}{10}$				$\frac{11}{12}$	$\frac{1}{2}$	$\frac{1}{3}$		$\frac{3}{4}$		
		E.			F.						G.			H.

$$\begin{array}{|c|} \hline 20 \\ \hline \frac{1}{3} \\ \hline \end{array} + \begin{array}{|c|} \hline 25 \\ \hline \frac{5}{2} \\ \hline \end{array} = \begin{array}{|c|} \hline 45 \\ \hline \\ \hline \end{array}$$

A.

$$\begin{array}{|c|} \hline 18 \\ \hline \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{2}{5} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

B.

$$\begin{array}{|c|} \hline \\ \hline \frac{3}{4} \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{1}{2} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

D.

$$\begin{array}{|c|} \hline 20 \\ \hline \\ \hline \end{array} - \begin{array}{|c|} \hline 15 \\ \hline \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

E.

$$\begin{array}{|c|} \hline \\ \hline \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|} \hline \\ \hline \frac{3}{4} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

F.

$$\begin{array}{|c|} \hline \\ \hline 1 \\ \hline \end{array} - \begin{array}{|c|} \hline \\ \hline \frac{1}{12} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

G.

$$\begin{array}{|c|} \hline \\ \hline \frac{2}{3} \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{2}{3} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

H.

$$\begin{array}{|c|} \hline \\ \hline \frac{1}{2} \\ \hline \end{array} - \begin{array}{|c|} \hline \\ \hline \frac{1}{6} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

I.

$$\begin{array}{|c|} \hline \\ \hline \frac{2}{5} \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{1}{10} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

J.

$$\begin{array}{|c|} \hline \\ \hline \frac{1}{5} \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{1}{5} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

K.

$$\begin{array}{|c|} \hline \\ \hline \frac{1}{2} \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \frac{1}{4} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

L.

$$\begin{array}{|c|} \hline \\ \hline \frac{1}{2} \\ \hline \end{array} - \begin{array}{|c|} \hline \\ \hline \frac{1}{4} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

$$(2x) \begin{array}{|c|} \hline 15 \\ \hline \frac{1}{4} \\ \hline \end{array} = \begin{array}{|c|} \hline 30 \\ \hline \\ \hline \end{array}$$

M.

$$(3x) \begin{array}{|c|} \hline 10 \\ \hline \frac{1}{6} \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

N.

$$(5x) \begin{array}{|c|} \hline 6 \\ \hline \\ \hline \end{array} = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

O.

$$\begin{array}{|c|} \hline 40 \\ \hline \frac{2}{3} \\ \hline \end{array} (\div 2) = \begin{array}{|c|} \hline 20 \\ \hline \\ \hline \end{array}$$

Q.

$$\begin{array}{|c|} \hline 45 \\ \hline \frac{3}{4} \\ \hline \end{array} (\div 3) = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

R.

$$\begin{array}{|c|} \hline 24 \\ \hline \\ \hline \end{array} (\div 4) = \begin{array}{|c|} \hline \\ \hline \\ \hline \end{array}$$

S.

A.	F.	K.	P.	B.	G.	L.	Q.	C.	H.	M.	R.	D.	I.	N.	S.	E.	J.	O.	T.
$\frac{1}{3}$	$\frac{1}{12}$	$\frac{2}{5}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{11}{12}$	$\frac{3}{4}$	$\frac{1}{3}$	$\frac{1}{5}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{2}{5}$	$\frac{1}{10}$	$\frac{1}{2}$	$\frac{1}{10}$	$\frac{1}{10}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{9}{10}$	$\frac{11}{12}$	$\frac{3}{10}$	$\frac{1}{4}$	$\frac{5}{12}$	$\frac{3}{5}$	$\frac{3}{10}$	$\frac{2}{5}$	$\frac{1}{3}$	$\frac{5}{6}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{10}$	$\frac{3}{4}$	$\frac{1}{12}$	$\frac{2}{3}$	$\frac{3}{10}$	$\frac{1}{2}$

FENCE ARITHMETIC

5	9	4	9
6	9	1	6
8	1	6	8
6	6	8	3

--- A. 19's B. Total

8	6	2	4
4	4	4	5
4	7	4	5
6	7	5	5

--- 20's C. Total

3	6	3	6
4	11	4	6
14	8	5	6
6	7	9	7

--- 21's C. Total

LOOP ARITHMETIC

4
4
4
9
9
9
9
9
9
9
9
22

D.

4
4
4
9
9
9
9
9
9
9
9
17

F.

4
4
4
9
9
9
9
9
9
9
9
27

H.

4
4
4
9
9
9
9
9
9
9
9
49

E.

4
4
4
9
9
9
9
9
9
9
9
21

E.

4
4
4
9
9
9
9
9
9
9
9
40

H.

4
4
4
9
9
9
9
9
9
9
9
39

H.

4
4
4
9
9
9
9
9
9
9
9
44

H.

CHAIN REACTIONS

8 (+7) (-9) (+6) (+8) (-4) (+5) (+9) (+9) 39

F.

G.

15 (+8) (+9) (-6) (-8) (+7) (+8) (-7) (-6) 20

B.

C.

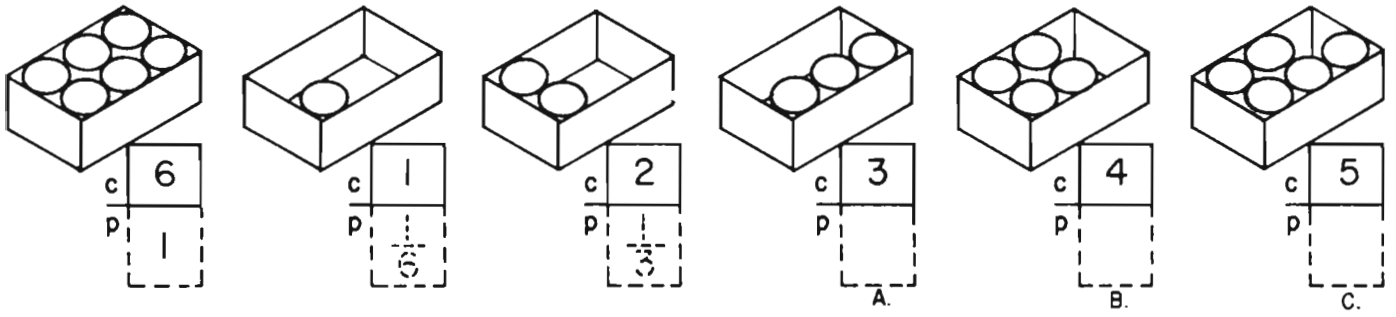
8 (+8) (+8) (+8) (+8) (+8) (+8) (+8) (+8) 72

F.

(-5) (-9) (+5) (-8) (+9) 42

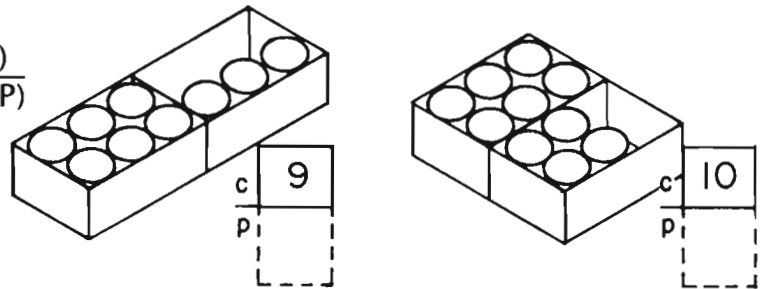
A.

	A.	B.	C.	D.	E.
F.	6	32	80	4,4,9	4,4,4,9
G.	5	16	25	4,9,9	4,4,9,9,9,9
H.	33	95	105	9,9,9	4,4,4,9,9,9



DOUBLE-TALK . . . about . . .

$\frac{\text{Cans (C)}}{\text{6-Packs (P)}}$

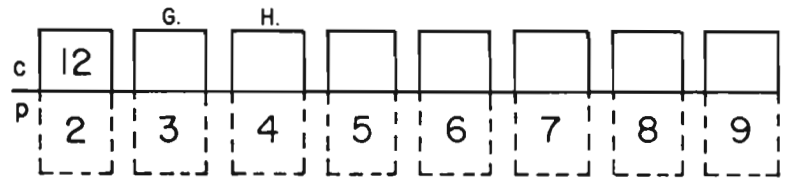


“One Six-Pack has Six Cans”

$\frac{1}{2}$ six-pack = ___ cans

$\frac{5}{6}$ six-pack = ___ cans

2 six-packs = ___ cans



$\frac{5}{6} + \frac{1}{6} = \frac{\quad}{6}$ c/p

$\frac{2}{3} - \frac{1}{3} = \frac{\quad}{3}$ c/p

$\frac{1}{2} + \frac{1}{2} = \frac{\quad}{2}$ c/p

$10 - 4 = \frac{\quad}{1}$ c/p

$\frac{2}{3} + \frac{5}{6} = \frac{\quad}{6}$ c/p

$\frac{1}{2} - \frac{1}{6} = \frac{\quad}{6}$ c/p

$(2 \times) \frac{\quad}{6} = \frac{\quad}{6}$ c/p

$(5 \times) \frac{\quad}{3} = \frac{\quad}{3}$ c/p

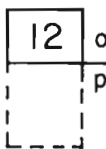
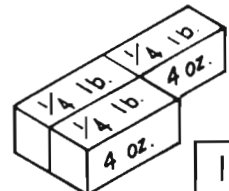
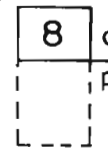
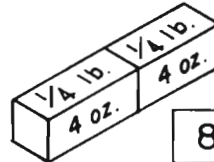
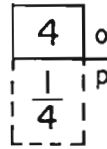
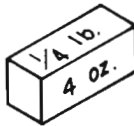
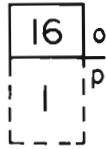
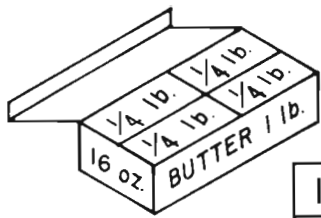
$(3 \times) \frac{18}{3} = \frac{\quad}{3}$ c/p

$\frac{6}{\quad} (\div 2) = \frac{\quad}{\quad}$ c/p

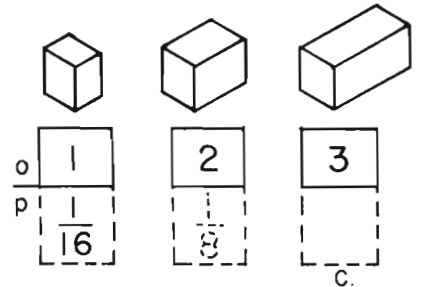
$\frac{\quad}{1} (\div 3) = \frac{\quad}{\quad}$ c/p

$\frac{36}{\quad} (\div 4) = \frac{\quad}{\quad}$ c/p

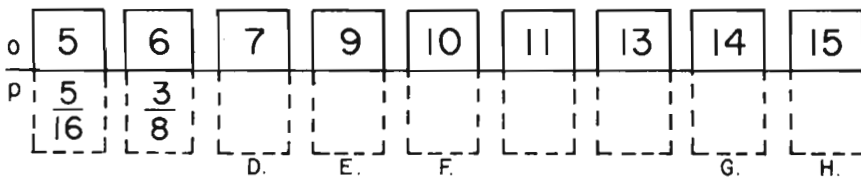
A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.								
$\frac{1}{2}$	$\frac{2}{3}$	$\frac{5}{6}$	$1\frac{2}{3}$	$\frac{10}{6}$	5	12	18	24	54	1	$\frac{6}{6}$	$\frac{1}{3}$	$1\frac{2}{3}$	$\frac{10}{6}$	$\frac{2}{3}$	1	$\frac{6}{6}$	$1\frac{1}{2}$	$\frac{9}{6}$	$\frac{1}{3}$	$\frac{2}{6}$	$1\frac{2}{3}$	$\frac{10}{6}$	9	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{9}{6}$



There are Ounces in Pound.



... or More DOUBLE-TALK



$$\frac{6}{\quad} + \frac{2}{\quad} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{1}{4} + \frac{1}{2} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} + \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{7}{16} + \frac{9}{16} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{3}{4} - \frac{1}{4} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$1 - \frac{1}{8} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{1}{2} - \frac{1}{4} = \frac{\quad}{\quad}$$

$$\left(\frac{1}{2} \text{ of}\right) \frac{8}{\quad} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\left(\frac{1}{3} \text{ of}\right) \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{9}{16} = \frac{\quad}{\quad}$$

$$\left(\frac{1}{4} \text{ of}\right) \frac{8}{\quad} = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{8}{\quad} (\div 2) = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{9}{\quad} (\div 3) = \frac{\quad}{\quad}$$

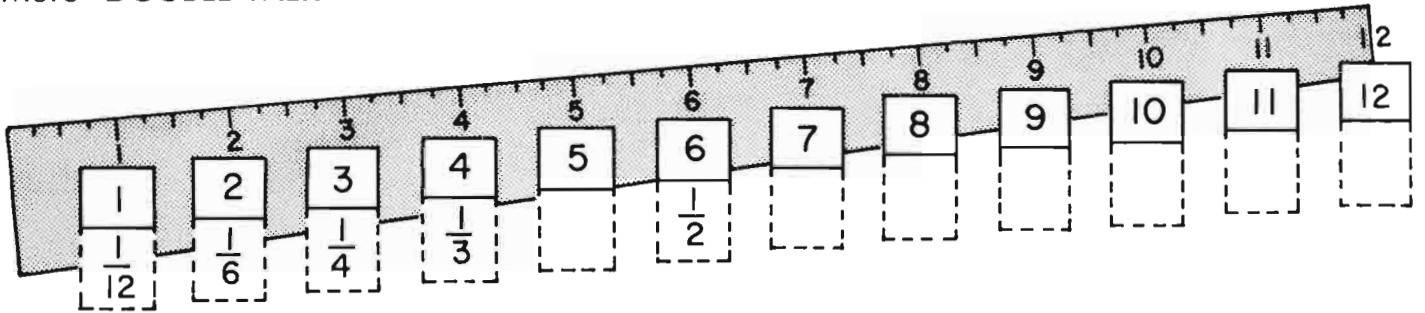
$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

$$\frac{8}{\quad} (\div 4) = \frac{\quad}{\quad}$$

$$\frac{\quad}{\quad} = \frac{\quad}{\quad}$$

A.	G.	M.	R.	B.	H.	N.	S.	C.	I.	O.	T.	D.	J.	P.	U.	E.	K.	Q.	V.	F.	L.
$\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{15}{16}$	$\frac{7}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{7}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{16}$	$\frac{9}{16}$	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{5}{8}$	1

More "DOUBLE-TALK"



(fraction of 1 foot)

There are inches
in foot

$\frac{1}{4}$ foot = 3 inches

$\frac{1}{2}$ ft. = _____ in.

$\frac{1}{6}$ ft. = _____ in.

$\frac{3}{4}$ foot = _____ inches

$\frac{1}{3}$ ft. = _____ in.

$\frac{5}{6}$ ft. = _____ in.

3 feet = _____ inches

$\frac{2}{3}$ ft. = _____ in.

$\frac{1}{12}$ ft. = _____ in.

+ = in.
 $\frac{1}{2}$ + $\frac{1}{4}$ = _____ ft.

+ = in.
 $\frac{1}{2}$ + $\frac{1}{6}$ = _____ ft.

+ = in.
 $\frac{1}{6}$ + $\frac{1}{3}$ = _____ ft.

- = in.
 $\frac{1}{3}$ - $\frac{1}{4}$ = _____ ft.

- = in.
 $\frac{3}{4}$ - $\frac{1}{2}$ = _____ ft.

- = in.
 $\frac{5}{6}$ - $\frac{2}{3}$ = _____ ft.

(2x) = in.
 $\frac{1}{4}$ = _____ ft.

(3x) = in.
 $\frac{1}{6}$ = _____ ft.

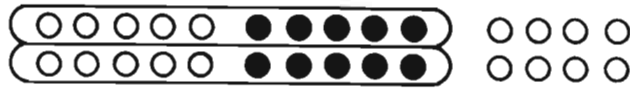
($\div 2$) = in.
 $\frac{2}{3}$ = _____ ft.

($\div 3$) = in.
 $\frac{1}{2}$ = _____ ft.

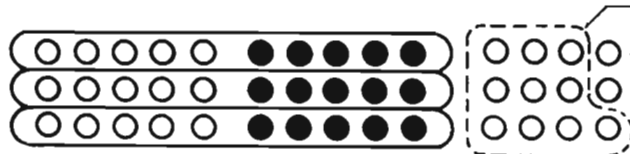


How do you feel ?

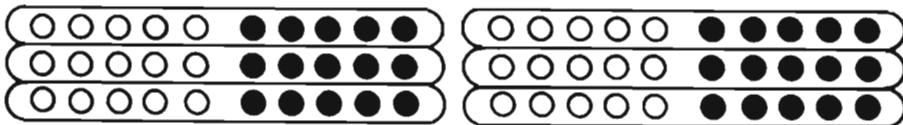
BEANSTICK MULTIPLICATION



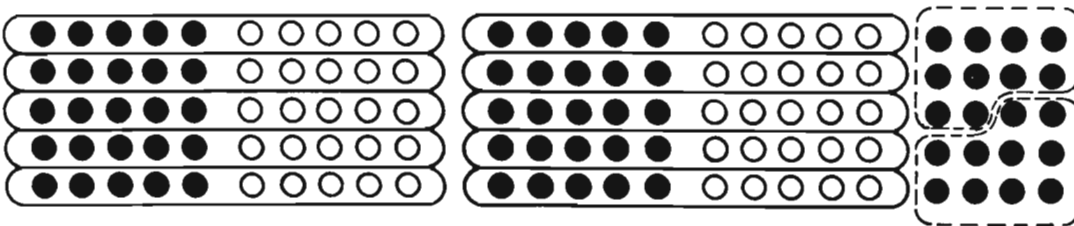
$$\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$$



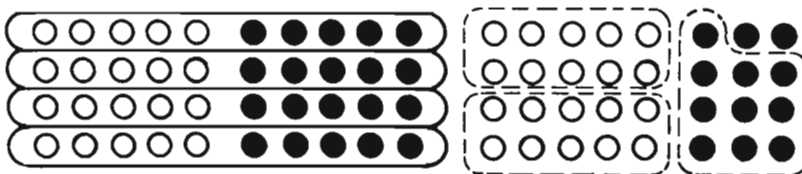
$$\begin{array}{r} 14 \\ \times 3 \\ \hline 42 \end{array}$$



$$\begin{array}{r} 25 \\ \times 3 \\ \hline 75 \end{array}$$



$$\begin{array}{r} 24 \\ \times 5 \\ \hline 120 \end{array}$$



$$\begin{array}{r} 18 \\ \times 4 \\ \hline 72 \end{array}$$

$$8 \quad (+7) \quad (+7) \quad (+7) \quad (+7) \quad (+7) \quad (+7) \quad (+7) \quad 64$$

Beanstick SHORTHAND

	— or | :: or
	— — or || :: or
	— — — . . or ||| :: or . .

Multiplication in Beanstick SHORTHAND

				$\begin{array}{r} 13 \\ \times 2 \\ \hline 26 \end{array}$			
				$\begin{array}{r} 14 \\ \times 3 \\ \hline 42 \end{array}$ A.			
			$\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$ B.				$\begin{array}{r} \text{---} \\ \times 2 \\ \hline \text{---} \end{array}$ C.
			$\begin{array}{r} \text{---} \\ \times \\ \hline \text{---} \end{array}$				$\begin{array}{r} \text{---} \\ \times \\ \hline \text{---} \end{array}$ D.
			$\begin{array}{r} \text{---} \\ \times \\ \hline \text{---} \end{array}$				$\begin{array}{r} \text{---} \\ \times \\ \hline \text{---} \end{array}$ E.

A.	B.	C.	D.	E.
42	84	32	92	108

BEANSTICK MULTIPLICATION in Shorthand

Please draw your own sketches.

$$\begin{array}{r} \underline{\underline{12}} \\ \times \underline{\underline{2}} \\ \hline \end{array} \quad \text{A.}$$

$$\begin{array}{r} \underline{\underline{21}} \\ \times \underline{\underline{3}} \\ \hline \end{array} \quad \text{B.}$$

$$\begin{array}{r} \underline{\underline{14}} \\ \times \underline{\underline{4}} \\ \hline \end{array} \quad \text{C.}$$

$$\begin{array}{r} \underline{\underline{12}} \\ \times \underline{\underline{5}} \\ \hline \end{array} \quad \text{D.}$$

$$\begin{array}{r} \underline{\underline{17}} \\ \times \underline{\underline{2}} \\ \hline \end{array} \quad \text{E.}$$

$$\begin{array}{r} \underline{\underline{19}} \\ \times \underline{\underline{3}} \\ \hline \end{array} \quad \text{F.}$$

$$\begin{array}{r} \underline{\underline{23}} \\ \times \underline{\underline{4}} \\ \hline \end{array} \quad \text{G.}$$

$$\begin{array}{r} \underline{\underline{16}} \\ \times \underline{\underline{5}} \\ \hline \end{array} \quad \text{H.}$$

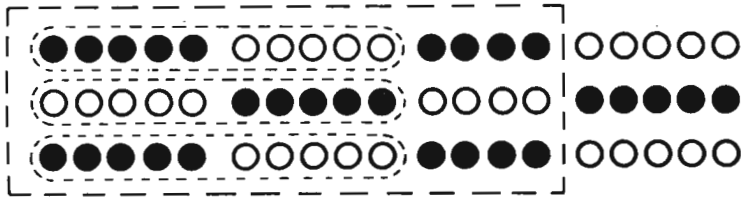
$$\begin{array}{r} \underline{\underline{18}} \\ \times \underline{\underline{3}} \\ \hline \end{array} \quad \text{I.}$$

$$\begin{array}{r} \underline{\underline{15}} \\ \times \underline{\underline{4}} \\ \hline \end{array}$$

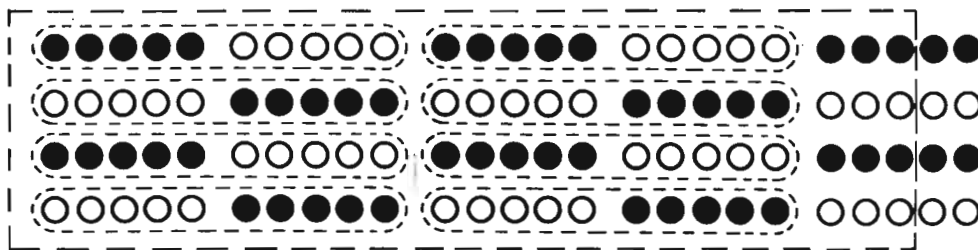
A.	B.	C.	D.	E.	F.	G.	H.	I.
24	54	48	60	24	37	92	80	43
14	63	56	50	34	57	82	70	54

A kind of BEANSTICK DIVISION

" $\begin{array}{|c|} \hline 3 \\ \hline 42 \\ \hline \end{array}$ " means: Please show a rectangular arrangement of 42 beans in 3 rows.
Then report the number of beans in each row.



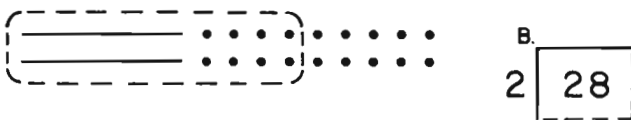
$$\begin{array}{|c|} \hline 14 \\ \hline 3 \\ \hline 42 \\ \hline \end{array}$$



A.

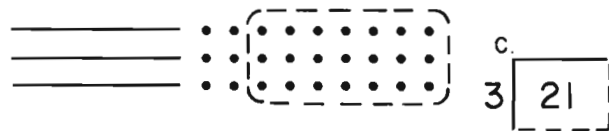
$$\begin{array}{|c|} \hline 4 \\ \hline 92 \\ \hline \end{array}$$

Division in Beanstick SHORTHAND



B.

$$\begin{array}{|c|} \hline 2 \\ \hline 28 \\ \hline \end{array}$$



C.

$$\begin{array}{|c|} \hline 3 \\ \hline 21 \\ \hline \end{array}$$



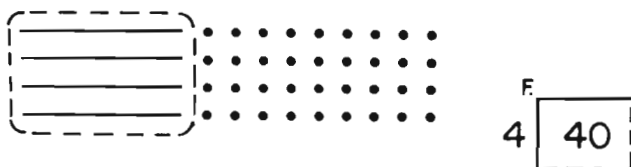
D.

$$\begin{array}{|c|} \hline 3 \\ \hline 39 \\ \hline \end{array}$$



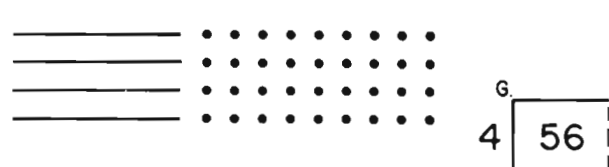
E.

$$\begin{array}{|c|} \hline 3 \\ \hline 45 \\ \hline \end{array}$$



F.

$$\begin{array}{|c|} \hline 4 \\ \hline 40 \\ \hline \end{array}$$



G.

$$\begin{array}{|c|} \hline 4 \\ \hline 56 \\ \hline \end{array}$$

A.	B.	C.	D.	E.	F.	G.
23	14	7	13	15	10	14

FENCE ARITHMETIC

3	7	3	2
6	8	5	4
2	6	4	6
7	3	2	4

18's

A. B.
Total

7	3	8	3
8	9	2	8
4	6	3	6
7	8	6	7

19's

A. B.
Total

5	4	9	7
5	5	8	4
2	5	6	3
3	4	5	5

20's

A. B.
Total

LOOP ARITHMETIC

4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
5	5	5	5	5	5	5	5
5	5	5	5	5	5	5	5
17	18	19	12	15	21	16	23
C.	D.	C.	D.	C.	D.	C.	

CHAIN REACTIONS

6 (+6) (+6) (+6) (+6) (+6) (+6) (+6) (+6) A.

70 (-7) (-7) (-7) (-7) (-7) (-7) (-7) (-7) B.

40 (+8) (+8) (+8) (+8) B.

90 (-9) (-9) (-9) (-9) A.

A.	B.	C.	D.
54	94	5,5,5	4,4,5,5
4	14	4,5,5,5	4,4,4
16	72	4,4,4,5	4,4,5,5,5
5	80	4,4,4,4	4,4,4,4,5

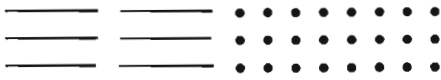
MORE BEANSTICK DIVISION in Shorthand

Please describe the arrangements shown.

A.	D.	G.	B.	E.	H.	C.	F.	I.
$\begin{array}{r} 17 \\ 2 \overline{)34} \end{array}$	$\begin{array}{r} \\ 4 \overline{)48} \end{array}$	$\begin{array}{r} 19 \\ 4 \overline{)76} \end{array}$	$\begin{array}{r} 8 \\ 3 \overline{)24} \end{array}$	$\begin{array}{r} 24 \\ 3 \overline{)72} \end{array}$	$\begin{array}{r} \\ \overline{)108} \end{array}$	$\begin{array}{r} 20 \\ 3 \overline{)60} \end{array}$	$\begin{array}{r} 25 \\ 4 \overline{)} \end{array}$	$\begin{array}{r} 25 \\ 5 \overline{)} \end{array}$

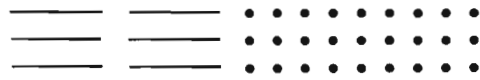
More BEANSTICK DIVISION in Shorthand

Please draw the arrangements indicated.



3 39 ^{A.}

Then complete the report.



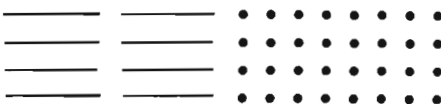
3 42 ^{B.}



3 63 ^{C.}



3 51 ^{D.}



4 48 ^{E.}



4 32 ^{F.}



4 56 ^{G.}



4 100 ^{H.}



5 65 ^{I.}



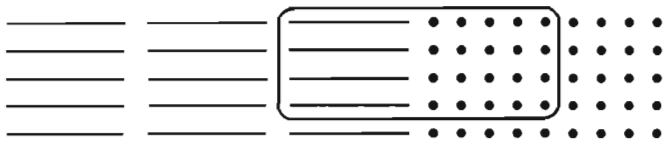
5 110 ^{J.}

or

	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
	12	16	21	22	12	18	24	25	13	24
	13	14	29	17	23	8	14	40	15	22

BEANSTICK MULTIPLICATION and DIVISION . . . and Related Examples

Please complete the report.



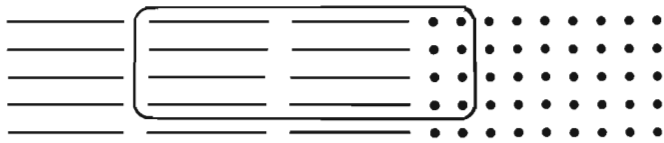
$$4 \overline{) 60} \quad \text{A.}$$

$$4 \overline{) 56} \quad \text{B.}$$

$$4 \overline{) 60} \quad \text{C.}$$

$$8 \overline{) 56} \quad \text{D.}$$

$$4 \overline{) 120} \quad \text{E.}$$



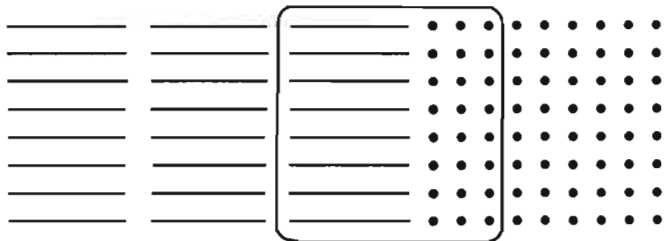
$$4 \overline{) \quad} \quad \text{F.}$$

$$4 \overline{) 84} \quad \text{H.}$$

$$4 \overline{) 92} \quad \text{I.}$$

$$4 \overline{) 44} \quad \text{J.}$$

$$4 \overline{) 80} \quad \text{K.}$$



$$8 \overline{) \quad} \quad \text{L.}$$

$$8 \overline{) 112} \quad \text{N.}$$

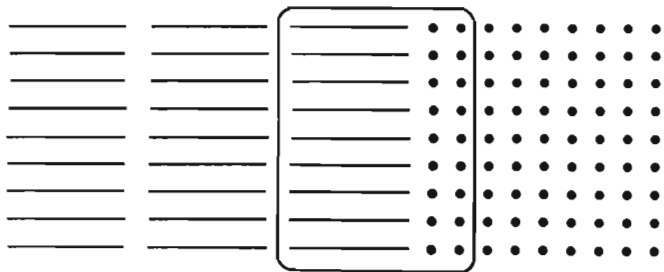
$$8 \overline{) 96} \quad \text{O.}$$

$$14 \overline{) 112} \quad \text{P.}$$

$$12 \overline{) 96} \quad \text{Q.}$$

$$13 \overline{) 104} \quad \text{R.}$$

$$4 \overline{) 104} \quad \text{S.}$$



$$\overline{) \quad} \quad \text{T.}$$

$$9 \overline{) 117} \quad \text{V.}$$

$$12 \overline{) 108} \quad \text{W.}$$

$$13 \overline{) 117} \quad \text{X.}$$

$$9 \overline{) 99}$$

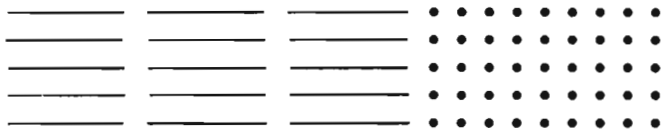
$$9 \overline{) 54}$$

$$6 \overline{) 54}$$

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.
15	14	13	7	16	32	24	21	23	11	20	13	104	12	12	12	12	12	26	9	108	13	9	8
16	17	15	9	30	22	88	22	24	22	19	23	108	14	13	8	8	8	21	12	11	12	8	9

BEANSTICK MULTIPLICATION and DIVISION . . . and Related Examples

Please draw the sketches and complete the report.



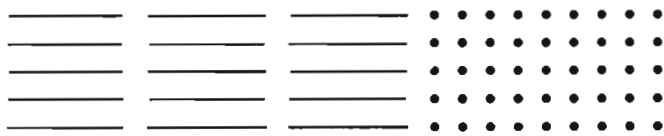
$$2 \overline{) 70} \text{ A}$$

$$2 \overline{) 72} \text{ B}$$

$$2 \overline{) 68} \text{ C}$$

$$35 \overline{) 70} \text{ D}$$

$$2 \overline{) 140} \text{ E}$$



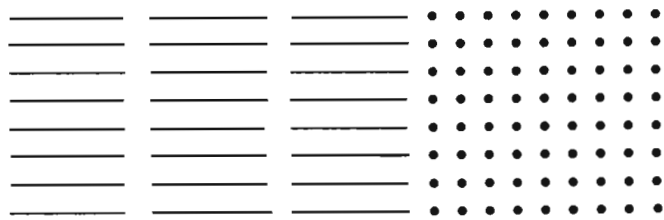
$$4 \overline{) 60} \text{ F}$$

$$4 \overline{) 68} \text{ G}$$

$$4 \overline{) 52} \text{ H}$$

$$13 \overline{) 52} \text{ I}$$

$$15 \overline{) 60} \text{ J}$$



$$5 \overline{) 130} \text{ K}$$

$$5 \overline{) 135} \text{ L}$$

$$5 \overline{) 140} \text{ M}$$

$$5 \overline{) 65} \text{ N}$$

$$13 \overline{) 65} \text{ O}$$

$$27 \overline{) 135} \text{ P}$$

$$26 \overline{) 130} \text{ Q}$$



$$6 \overline{) 198} \text{ V}$$

$$6 \overline{) 192} \text{ R}$$

$$6 \overline{) 186} \text{ S}$$

$$6 \overline{) 180} \text{ T}$$

$$6 \overline{) 90} \text{ U}$$

$$12 \overline{) 180} \text{ U}$$

$$33 \overline{) 198} \text{ V}$$

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
35	36	37	4	70	17	17	13	11	12	26	27	28	12	7	15	5	32	31	29	14	33
32	33	34	2	35	15	15	16	4	4	29	28	27	13	5	5	4	28	29	30	15	6

BEANSTICK MULTIPLICATION and DIVISION . . . and Related Examples

Please draw the sketches and complete the report.



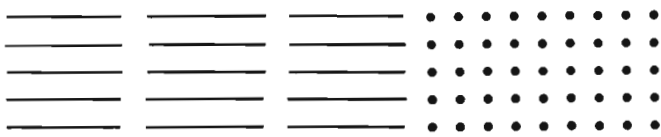
$$5 \overline{) 80} \quad \text{A.}$$

$$10 \overline{) 80} \quad \text{B.}$$

$$5 \overline{) 85} \quad \text{C.}$$

$$5 \overline{) 75} \quad \text{D.}$$

$$5 \overline{) 160} \quad \text{E.}$$



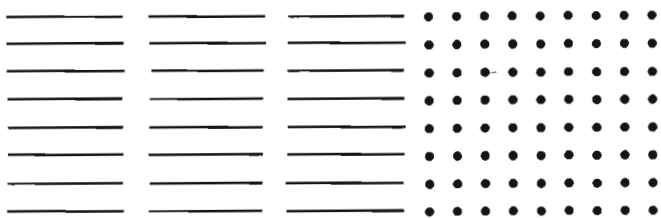
$$3 \overline{) 87} \quad \text{F.}$$

$$3 \overline{) 90} \quad \text{G.}$$

$$6 \overline{) 90} \quad \text{H.}$$

$$29 \overline{) 87} \quad \text{I.}$$

$$15 \overline{) 90} \quad \text{J.}$$



$$8 \overline{) 176} \quad \text{K.}$$

$$8 \overline{) 184} \quad \text{L.}$$

$$8 \overline{) 168} \quad \text{M.}$$

$$8 \overline{) 160} \quad \text{N.}$$

$$8 \overline{) 152} \quad \text{O.}$$

$$16 \overline{) 160} \quad \text{P.}$$

$$19 \overline{) 152} \quad \text{Q.}$$



$$9 \overline{) 126} \quad \text{R.}$$

$$9 \overline{) 135} \quad \text{S.}$$

$$9 \overline{) 117} \quad \text{T.}$$

$$9 \overline{) 108} \quad \text{U.}$$

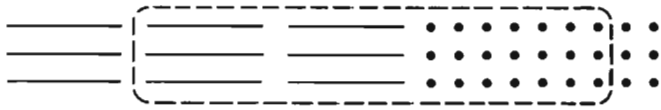
$$9 \overline{) 99} \quad \text{V.}$$

$$12 \overline{) 120}$$

$$12 \overline{) 132}$$

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.
18	8	17	14	32	30	15	15	3	6	23	22	21	20	19	11	8	14	14	13	10	11
16	7	18	15	30	29	30	3	6	8	22	23	24	25	18	10	7	15	15	15	12	12

BEANSTICK MULTIPLICATION and DIVISION . . . and Related Examples



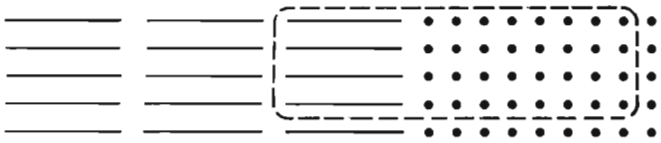
$$3 \overline{) 27}$$

$$3 \overline{) 87}$$

$$3 \overline{) 78}$$

$$4 \overline{) 27}$$

$$27 \overline{) 81}$$



$$4 \overline{) 72}$$

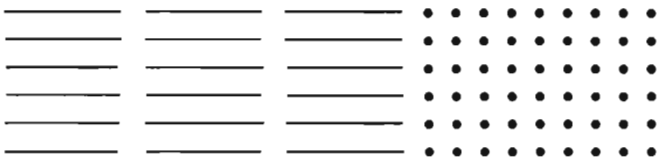
$$4 \overline{) 76}$$

$$4 \overline{) 68}$$

$$2 \overline{) 72}$$

$$8 \overline{) 72}$$

Please draw your own sketches.



$$6 \overline{) 24}$$

$$6 \overline{) 150}$$

$$3 \overline{) 150}$$

$$6 \overline{) 72}$$

$$6 \overline{) 13}$$

$$6 \overline{) 180}$$

$$6 \overline{) 192}$$



$$6 \overline{) 210}$$

$$6 \overline{) 204}$$

$$6 \overline{) 36}$$

$$3 \overline{) 204}$$

$$6 \overline{) 108}$$

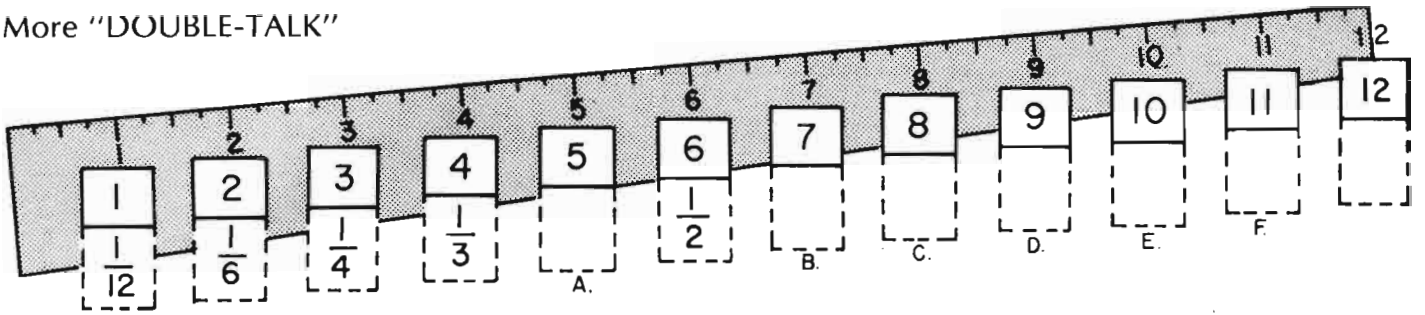
$$3 \overline{) 34}$$

$$6 \overline{) 432}$$



How do you feel ?

More "DOUBLE-TALK"



There are $\boxed{12}$ inches
in $\boxed{1}$ foot

15		21		27	30
$1\frac{1}{4}$	$1\frac{1}{2}$		2		

36			H.
3	4	5	6

$\frac{1}{4}$ foot = $\boxed{3}$ inches
 $\frac{3}{4}$ foot = _____ inches
 3 feet = $\boxed{36}$ inches

$\frac{1}{2}$ foot = _____ inches
 $\frac{1}{3}$ foot = _____ inches
 $\frac{2}{3}$ foot = $\boxed{8}$ inches

$1\frac{1}{4}$ foot = $\boxed{15}$ inches
 $2\frac{1}{2}$ feet = _____ inches
 $\frac{1}{12}$ foot = _____ inch

$$\frac{\boxed{}}{3} + \frac{\boxed{}}{6} = \frac{\boxed{}}{}$$

$$\frac{12}{\boxed{}} + \frac{24}{\boxed{}} = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{4} + \frac{\boxed{}}{4} = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{2} - \frac{\boxed{}}{2} = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{3} - \frac{1}{2} = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{1} - \frac{2}{3} = \frac{\boxed{}}{}$$

$$(3 \times) \frac{\boxed{}}{2} = \frac{\boxed{}}{}$$

$$(2 \times) \frac{\boxed{}}{2} = \frac{\boxed{}}{}$$

$$(5 \times) \frac{\boxed{}}{4} = \frac{\boxed{}}{}$$

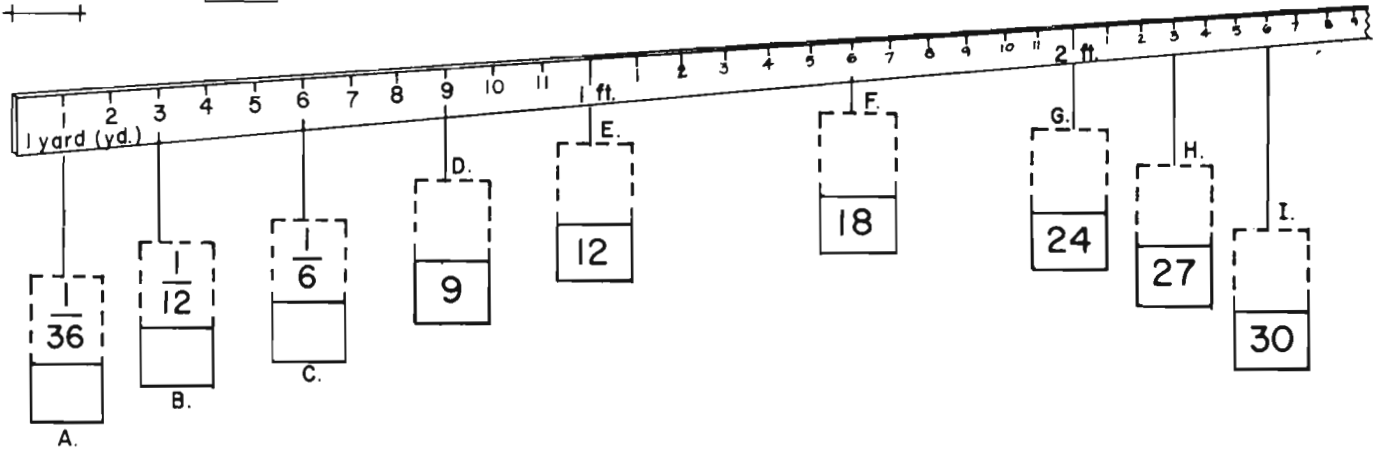
$$\frac{\boxed{}}{1} (\div 3) = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{2} (\div 3) = \frac{\boxed{}}{}$$

$$\frac{\boxed{}}{2} (\div 2) = \frac{\boxed{}}{}$$

A.	I	P.	B.	J.	Q.	C.	K.	R.	D.	L.	S.	E.	M.	T.	F.	N.	U.	G.	O.	V.	H.
$\frac{5}{12}$	36	$1\frac{1}{2}$	$\frac{7}{12}$	8	$\frac{1}{3}$	$\frac{2}{3}$	15	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	3	$\frac{5}{6}$	3	$1\frac{1}{4}$	$\frac{11}{12}$	$1\frac{1}{2}$	$\frac{1}{3}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{2}{3}$	72

1 yard is 36 inches



$\frac{1}{18}$	$\frac{1}{9}$	$\frac{2}{9}$	$\frac{4}{9}$	$\frac{5}{9}$	$\frac{7}{9}$	$\frac{8}{9}$	$\frac{5}{12}$	$\frac{7}{12}$	$\frac{11}{12}$	$\frac{5}{36}$	$\frac{7}{36}$	$\frac{11}{36}$	$\frac{13}{36}$
J.	K.						L.			M.			

$\frac{3}{4} - \frac{1}{2} =$ []

N.

$\frac{2}{3} - \frac{1}{3} =$ []

$1 - \frac{1}{9} =$ []

O.

$\frac{2}{9} + \frac{5}{9} =$ []

$\frac{7}{36} + \frac{11}{36} =$ []

P.

$\frac{2}{3} + \frac{1}{6} =$ []

$\frac{1}{6} - \frac{1}{12} =$ []

Q.

$\frac{1}{6} + \frac{1}{4} =$ []

R.

$\frac{1}{18} - \frac{1}{36} =$ []

$\frac{1}{2} (\div 2) =$ []

S.

$\frac{8}{9} (\div 2) =$ []

T.

$\frac{1}{9} (\div 2) =$ []

U.

$(\frac{1}{2} \text{ of}) \frac{1}{3} =$ []

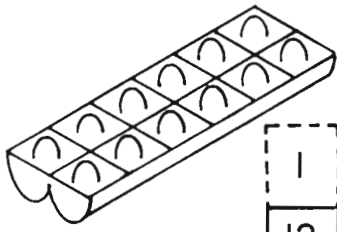
V.

$(\frac{1}{2} \text{ of}) \frac{2}{3} =$ []

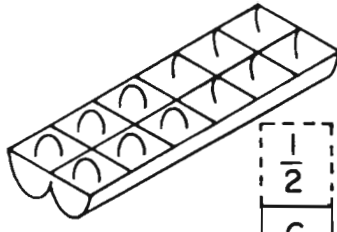
W.

$(\frac{1}{2} \text{ of}) \frac{1}{2} =$ []

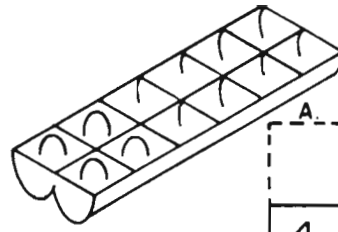
A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.
1	4	5	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{2}{4}$	$\frac{3}{5}$	$\frac{5}{6}$	9	4	15	6	$\frac{1}{4}$	8	$\frac{1}{2}$	$\frac{2}{24}$	$\frac{5}{12}$	$\frac{1}{4}$	$\frac{10}{9}$	$\frac{2}{9}$	$\frac{1}{6}$	$\frac{1}{3}$
2	3	6	$\frac{1}{4}$	$\frac{1}{3}$	18	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{2}{15}$	2	2	10	5	$\frac{2}{8}$	$\frac{8}{9}$	$\frac{18}{16}$	$\frac{1}{12}$	$\frac{2}{16}$	$\frac{2}{2}$	$\frac{4}{9}$	$\frac{1}{18}$	$\frac{2}{3}$	$\frac{2}{6}$



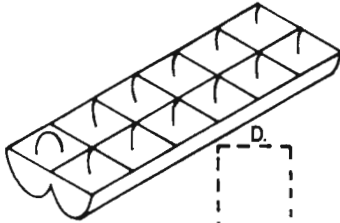
1 dozen
12 eggs



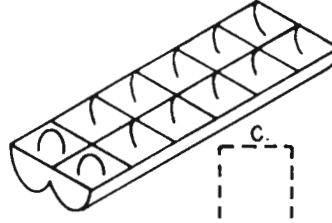
$\frac{1}{2}$ doz.
6 eggs



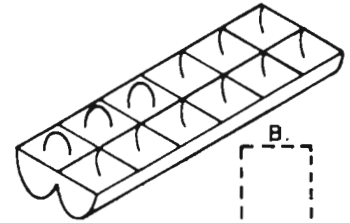
A.
4



D.
1



C.
2



B.
3

$\frac{2}{3}$	$\frac{3}{4}$	$\frac{5}{6}$	$\frac{5}{12}$	$\frac{7}{12}$	$\frac{11}{12}$	I.				J.		K.	
						13	14	15	16	17	18	19	20

E.

F.

G.

H.

$$\frac{3}{4} + \frac{3}{4} = \square$$

L.

$$\frac{7}{12} + \frac{5}{12} = \square$$

M.

$$1 + \frac{2}{3} = \square$$

$$1 - \frac{2}{3} = \square$$

N.

$$1\frac{1}{2} - \frac{5}{6} = \square$$

O.

$$1\frac{1}{4} - \frac{1}{2} = \square$$

$$\frac{11}{12} + \frac{1}{12} = \square$$

P.

$$\frac{11}{12} - \frac{5}{12} = \square$$

Q.

$$\frac{1}{3} + \frac{1}{6} = \square$$

$$(2 \times) \frac{1}{12} = \square$$

R.

$$(3 \times) \frac{1}{2} = \square$$

S.

$$(4 \times) \frac{1}{12} = \square$$

$$\frac{1}{2} (\div 6) = \square$$

T.

$$1\frac{1}{3} (\div 8) = \square$$

U.

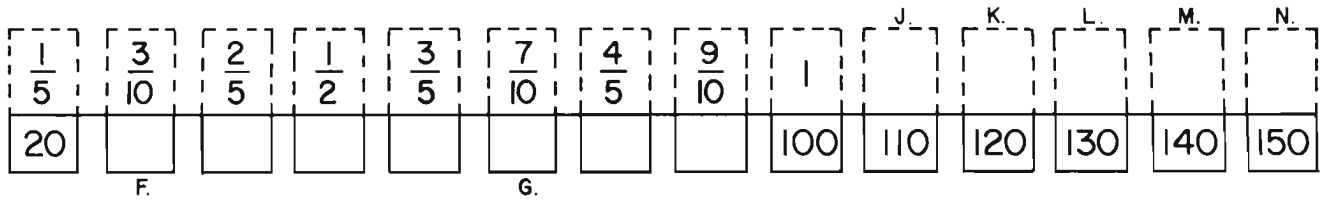
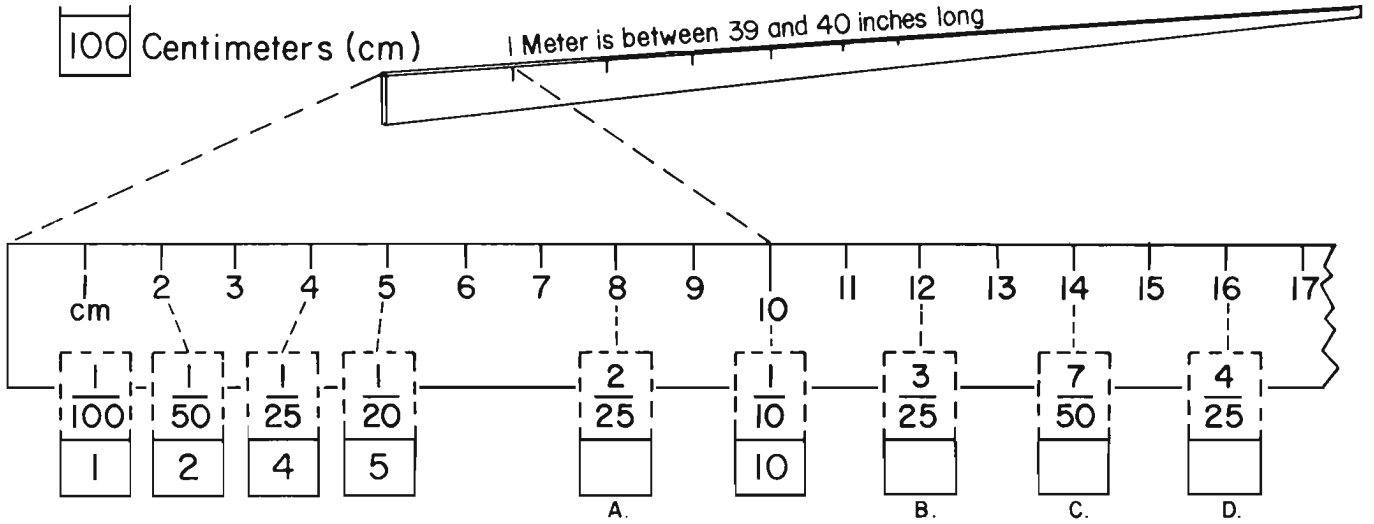
$$1\frac{1}{2} (\div 6) = \square$$

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.
$\frac{4}{3}$	$\frac{1}{4}$	$\frac{1}{12}$	$\frac{1}{8}$	11	5	7	13	$1\frac{1}{2}$	$\frac{5}{12}$	$\frac{11}{12}$	$1\frac{1}{2}$	1	$\frac{1}{3}$	$\frac{4}{6}$	$\frac{12}{12}$	$\frac{1}{2}$	$\frac{1}{6}$	$1\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{5}$
$\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{1}{12}$	10	7	10	11	$1\frac{6}{12}$	$\frac{7}{12}$	$\frac{7}{12}$	$\frac{1}{4}$	$\frac{12}{12}$	$\frac{5}{6}$	$\frac{2}{3}$	1	$\frac{6}{12}$	$\frac{2}{12}$	$\frac{3}{2}$	$\frac{1}{12}$	$\frac{1}{6}$

1 Meter (M)

100 Centimeters (cm)

1 Meter is between 39 and 40 inches long



$\frac{1}{5} + \frac{1}{5} =$

O.

$\frac{7}{10} + \frac{7}{10} =$

P.

$\frac{1}{100} + \frac{1}{100} =$

Q.

$\frac{1}{20} - \frac{1}{25} =$

R.

$1 - \frac{7}{10} =$

$\frac{9}{10} - \frac{4}{5} =$

$\frac{1}{2} - \frac{1}{10} =$

S.

$\frac{1}{10} + \frac{9}{10} =$

$\frac{53}{100} - \frac{3}{100} =$

T.

(10 x) $\frac{1}{10} =$

U.

(7 x) $\frac{1}{5} =$

H.

(3 x) $\frac{3}{10} =$

V.

($\frac{1}{3}$ of) $\frac{9}{10} =$

E.

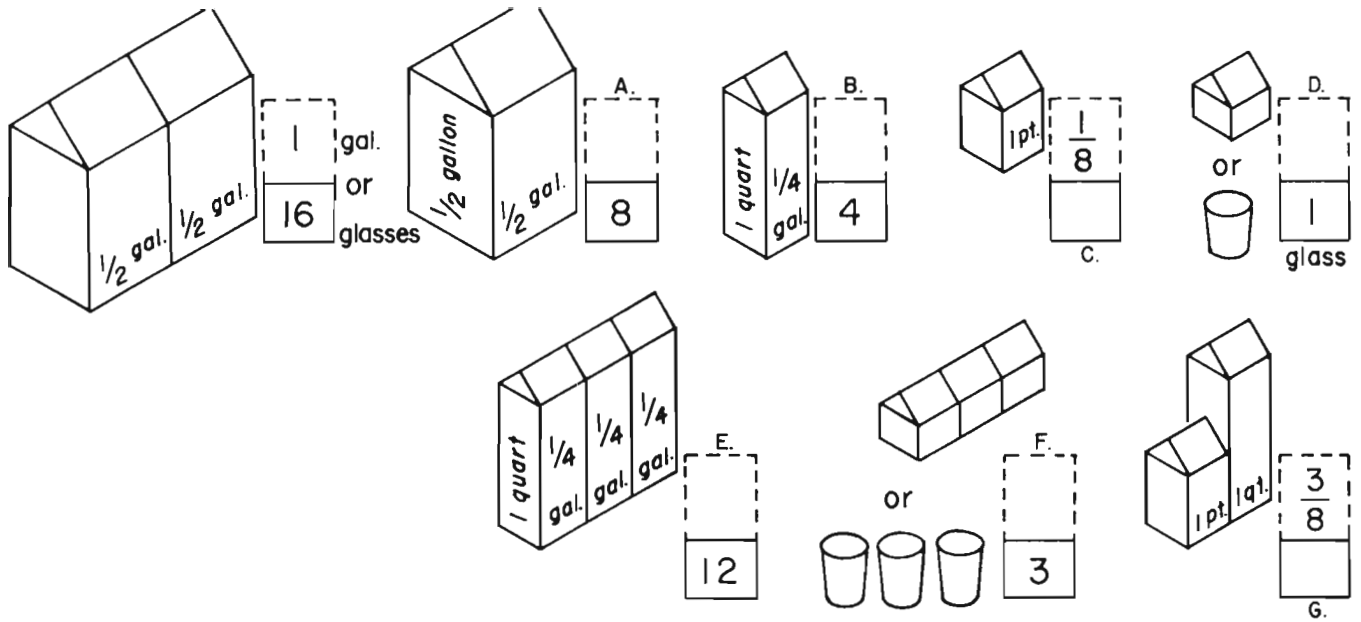
($\frac{1}{4}$ of) $\frac{2}{25} =$

W.

($\frac{1}{5}$ of) $\frac{1}{2} =$

I.

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.
2	22	14	16	$\frac{3}{10}$	30	17	$1\frac{2}{5}$	$\frac{2}{7}$	$1\frac{1}{10}$	$1\frac{1}{5}$	$\frac{10}{13}$	$1\frac{2}{5}$	$1\frac{1}{2}$	$\frac{2}{10}$	$1\frac{2}{5}$	$\frac{1}{50}$	$\frac{1}{100}$	$\frac{4}{10}$	$\frac{50}{100}$	1	$\frac{7}{5}$	$1\frac{1}{50}$
8	12	57	29	$\frac{10}{27}$	13	70	$\frac{7}{5}$	$\frac{1}{10}$	$\frac{1}{10}$	$1\frac{2}{10}$	$1\frac{3}{10}$	$1\frac{4}{10}$	$1\frac{5}{10}$	$\frac{2}{5}$	$\frac{14}{10}$	$\frac{2}{100}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{1}{2}$	$\frac{10}{10}$	$\frac{9}{10}$	$\frac{2}{100}$



$\frac{5}{16}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{11}{16}$	$\frac{13}{16}$	$\frac{15}{16}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$1\frac{1}{8}$	N.				
									18	20	22	24	26	
H.	I.					J.			M.					

$$1 + \frac{3}{4} = \square$$

O.

$$\frac{5}{8} + \frac{3}{8} = \square$$

$$\frac{3}{16} + \frac{5}{16} = \square$$

P.

$$1 - \frac{3}{4} = \square$$

$$\frac{7}{8} - \frac{3}{8} = \square$$

Q.

$$1\frac{1}{2} - \frac{3}{4} = \square$$

$$\frac{7}{8} + \frac{3}{4} = \square$$

R.

$$\frac{3}{4} - \frac{1}{16} = \square$$

S.

$$\frac{1}{4} + 1\frac{1}{4} = \square$$

$$(2 \times) \frac{3}{8} = \square$$

T.

$$(4 \times) \frac{1}{8} = \square$$

L.

$$(5 \times) \frac{3}{16} = \square$$

U.

$$\frac{15}{16} (\div 3) = \square$$

V.

$$1\frac{1}{8} (\div 3) = \square$$

W.

$$\frac{1}{2} (\div 4) = \square$$

K.

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.
$\frac{1}{8}$	$\frac{4}{8}$	2	$\frac{1}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	4	5	7	5	$\frac{1}{8}$	$\frac{4}{8}$	18	$\frac{2}{4}$	$\frac{7}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{13}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{16}$	$\frac{5}{16}$	$\frac{3}{8}$
$\frac{1}{2}$	$\frac{1}{4}$	8	$\frac{1}{16}$	$\frac{1}{3}$	$\frac{3}{16}$	6	8	9	6	$\frac{2}{4}$	$\frac{1}{2}$	10	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{8}{16}$	$\frac{4}{8}$	$\frac{5}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{16}$	$\frac{3}{16}$	$\frac{9}{8}$

Please complete the tables.

There are 12 inches in 1 foot

ft.	$\frac{1}{12}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{5}{6}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{7}{12}$	$\frac{1}{2}$	$\frac{1}{3}$
in.	12											

There are 60 minutes in 1 hour.

hr.	$\frac{1}{60}$	$\frac{1}{30}$	$\frac{1}{20}$	$\frac{1}{15}$	$\frac{2}{15}$	$\frac{1}{10}$	$\frac{1}{6}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{4}{5}$	$\frac{5}{6}$	$\frac{3}{4}$
m.	60												

There are 100 cents in 1 dollar.

\$	$\frac{1}{100}$	$\frac{1}{50}$	$\frac{1}{25}$	$\frac{2}{25}$	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{9}{10}$
¢	100												

$$\frac{1}{3} + \frac{1}{6} = \boxed{}$$

$$\frac{3}{4} + \frac{3}{4} = \boxed{}$$

$$\frac{1}{6} + \frac{5}{6} = \boxed{}$$

$$\frac{3}{4} - \frac{1}{4} = \boxed{}$$

$$\frac{1}{2} - \frac{1}{5} = \boxed{}$$

$$\frac{2}{3} - \frac{1}{2} = \boxed{}$$

$$\frac{2}{3} + \frac{2}{3} = \boxed{}$$

$$\frac{3}{4} - \frac{1}{6} = \boxed{}$$

$$\frac{7}{10} + \frac{1}{10} = \boxed{}$$

$$(5 \times) \frac{1}{10} = \boxed{}$$

$$(2 \times) \frac{3}{4} = \boxed{}$$

$$\frac{2}{5} (\div 2) = \boxed{}$$

$$\frac{5}{6} (\div 2) = \boxed{}$$

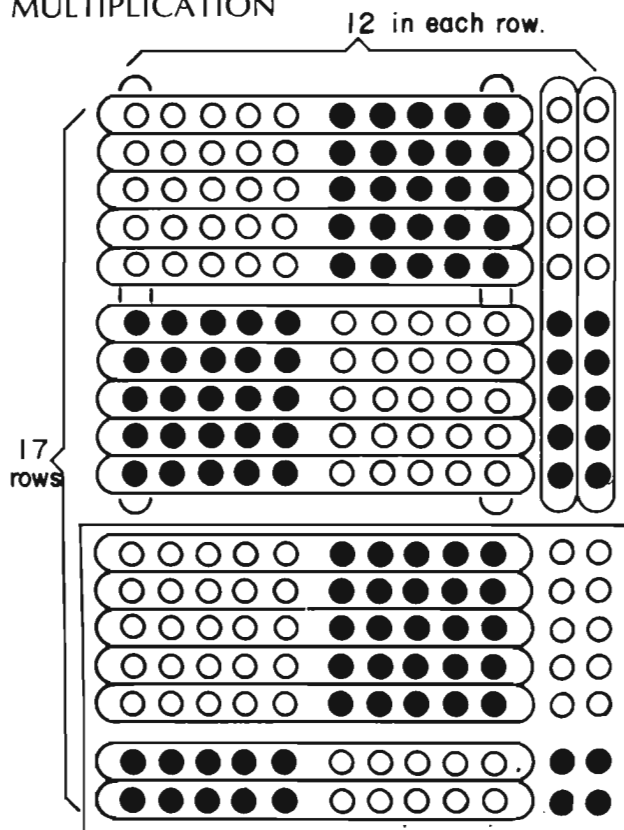


How do you feel ?

Rafts of 100 Pennies . . . Sticks with 10 Pennies . . . and Loose Pennies
 . . . all arranged neatly in Rows and Columns.

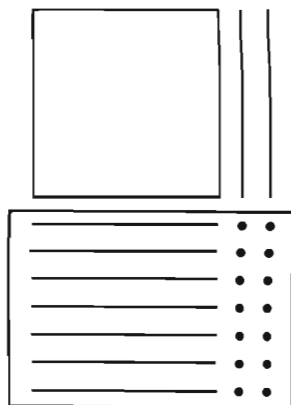
How many pennies altogether? How many rows? How many in each row?

MULTIPLICATION



How many pennies?

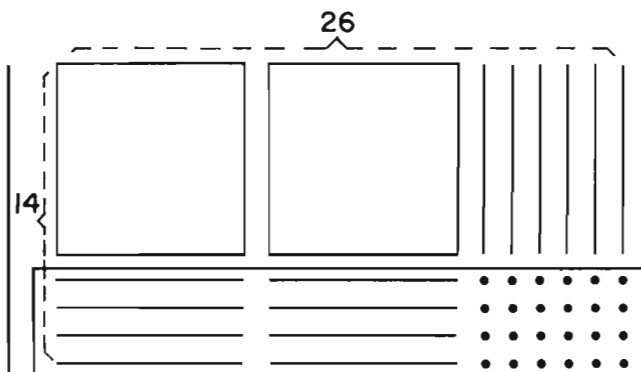
A shorthand sketch -



12 in a row
 $\times 17$ rows
 --- 84 in box
 --- 120 out of box
 --- Total

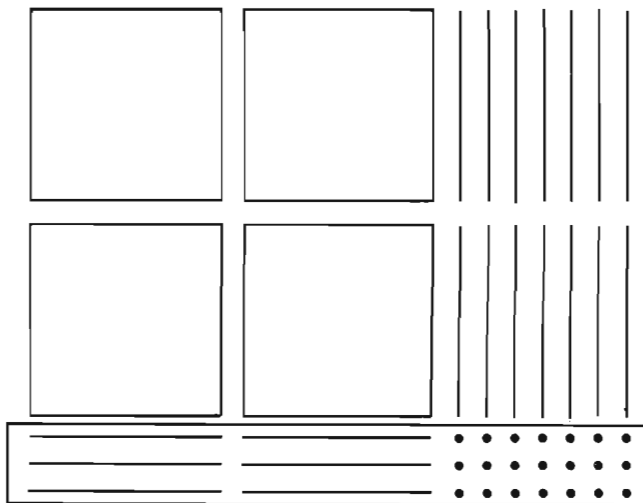
A. _____
 and
 12
 17 B. _____

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.
194	204	104	260	310	308	364	364	81	540	126	612
204	194	204	206	364	364	312	210	30	440	621	621



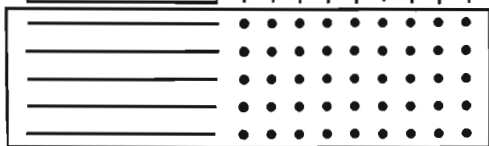
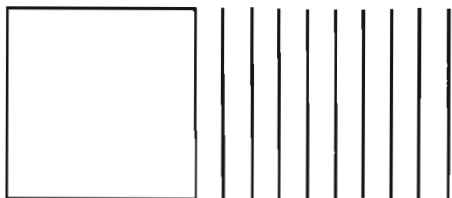
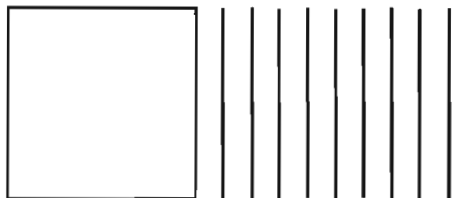
26 in a row
 $\times 14$ rows also
 C. _____ in box
 D. _____ out of box
 E. _____ Total

14 $\begin{array}{|c|} \hline 26 \\ \hline \end{array}$ G. $\begin{array}{|c|} \hline 14 \\ \hline \end{array}$ H.



27 in a row
 $\times 23$ rows \rightarrow also \rightarrow
 I. _____ in box
 J. _____ out of box
 K. _____ Total

23 $\begin{array}{|c|} \hline 27 \\ \hline \end{array}$ L. $\begin{array}{|c|} \hline 23 \\ \hline \end{array}$



19 in a row
x 25 rows

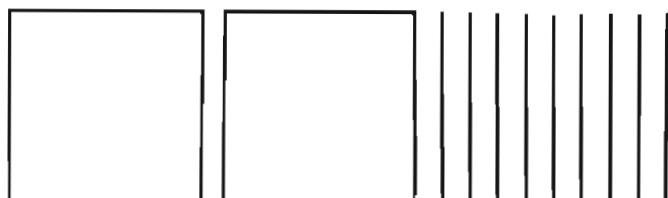
25
x 19

A. _____ in box

B. _____ out of box

C. _____ Total

19
25 19 25



29 in a row
x 13 rows

13
x 29

D. _____ in box

E. _____ out of box

F. _____ Total

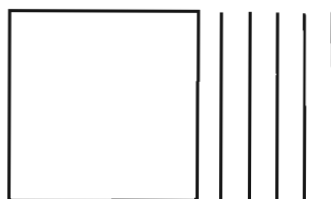
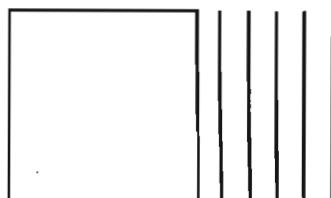
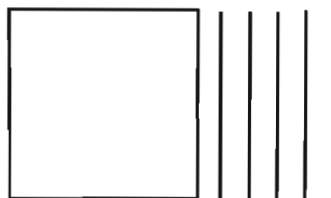
13 29 29 13



x 27

_____ and _____

G. _____



15
x 36

and

36
x 15

H. _____

15 36 36 15

A.	B.	C.	D.	E.	F.	G.	H.
85	95	380	280	365	475	78	87
290	280	367	377	629	729	540	490

$x \underline{37}$
 ----- B.
 ===== C.
 ----- D.

$\underline{44}$
 $x \underline{\quad}$ E. and $x \underline{44}$
 ----- F.
 =====
 ----- F. $\underline{44}$
 $\underline{\quad}$ F. 44 $\underline{\quad}$ E.

$\underline{37}$
 $x \underline{\quad}$
 ----- D. 37 $\underline{\quad}$ A.

$x \underline{16}$ and $x \underline{\quad}$

 =====
 ----- 16 $\underline{\quad}$ $\underline{\quad}$

$x \underline{\quad}$ and $x \underline{\quad}$
 ----- G.
 =====
 ----- G. $\underline{\quad}$ $\underline{\quad}$

A.	B.	C.	D.	E.	F.	G.							
37	13	91	71	390	380	76	481	23	24	1102	1012	848	884

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$	$\begin{array}{r} 1 \\ \times 6 \\ \hline 6 \end{array}$	$\begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array}$	$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$
--	--	---	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$	$\begin{array}{r} 10 \\ \times 6 \\ \hline 60 \end{array}$	$\begin{array}{r} 20 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 6 \\ \hline \end{array}$
--	--	---	---	---	---	---	---	---	---

$30 + 2 = 32$

$\begin{array}{r} 30 \\ \times 6 \\ \hline 180 \end{array}$	$\begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array}$	$\begin{array}{r} 32 \\ \times 6 \\ \hline 192 \end{array}$
---	---	---

$180 + 12 = 192$

$\begin{array}{r} 40 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$
---	--	---

A.

$\begin{array}{r} 10 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$
---	--	---

B.

$\begin{array}{r} 90 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$
---	--	---

C.

$\begin{array}{r} 80 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$
---	--	---

$\begin{array}{r} 70 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$
---	--	---

$\begin{array}{r} 60 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 64 \\ \times 6 \\ \hline \end{array}$
---	---	---

C.

$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 6 \\ \hline \end{array}$
---	---	---

B.

$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ \times 6 \\ \hline \end{array}$
---	---	---

A.

Please complete the following as True Statements . . . using single digit numbers only.

$40 = \underline{6 \times 6} + \underline{4}$ D.

$50 = \underline{8 \times } + \underline{}$ H.

$25 = \underline{4 \times 7} - \underline{3}$ note
↓
3 F.

$50 = \underline{9 \times } + \underline{}$ E.

$40 = \underline{5 \times } + \underline{}$ I.

$60 = \underline{7 \times } - \underline{}$ F.

$25 = \underline{3 \times } + \underline{}$

$75 = \underline{9 \times } + \underline{}$ D.

$49 = \underline{6 \times } - \underline{}$ G.

$60 = \underline{8 \times } + \underline{}$ F.

$33 = \underline{5 \times } + \underline{}$

$53 = \underline{7 \times } - \underline{}$ H.

$30 = \underline{4 \times } + \underline{}$

$31 = \underline{3 \times } + \underline{}$

$17 = \underline{2 \times } - \underline{}$

$70 = \underline{8 \times } + \underline{}$ G.

$87 = \underline{9 \times } + \underline{}$ E.

$45 = \underline{7 \times } - \underline{}$ I.

A.	B.	C.
342	114	384
288	174	576

G.	D.	H.	E.	I.	F.
9,5	8,3	6,2	5,5	7,4	7,4
8,6	6,4	8,3	9,6	7,5	9,3

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$
--	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 9 \\ \hline \end{array}$
--	---	---	---	---	---	---	---	---	---

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 32 \\ \times 9 \\ \hline \end{array}$
--	--	---

A.

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 9 \\ \hline \end{array}$
--	--	---

B.

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 9 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 89 \\ \times 9 \\ \hline \end{array}$
--	--	---

C.

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 54 \\ \times 9 \\ \hline \end{array}$
--	--	---

D.

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 73 \\ \times 9 \\ \hline \end{array}$
--	--	---

E.

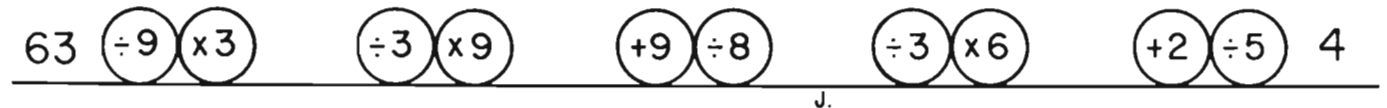
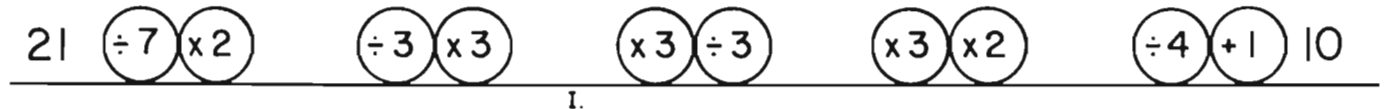
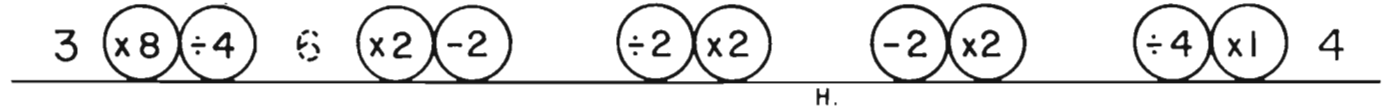
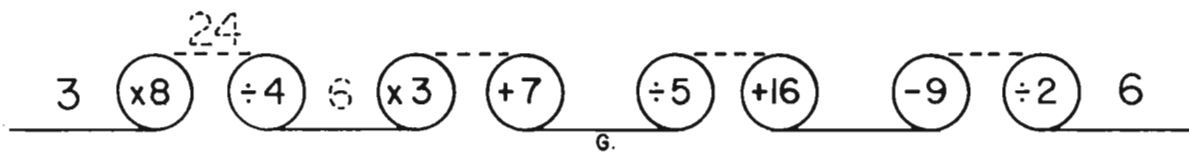
$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ \times 9 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 91 \\ \times 9 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 67 \\ \times 9 \\ \hline \end{array}$
--	--	---

F.

CHAIN REACTIONS



I.	A.	D.	F.	B.	E.	G.	C.	H.	J.
6	288	486	603	162	657	25	801	10	9

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$
--	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 7 \\ \hline \end{array}$
--	---	---	---	---	---	---	---	---	---

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 36 \\ \times 7 \\ \hline \end{array}$
--	--	---

A.

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 74 \\ \times 7 \\ \hline \end{array}$
--	--	---

B.

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 65 \\ \times 7 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ \times 7 \\ \hline \end{array}$
--	--	---

C.

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ \times 7 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 87 \\ \times 7 \\ \hline \end{array}$
--	--	---

A.

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 97 \\ \times 7 \\ \hline \end{array}$
--	--	---

B.

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 68 \\ \times 7 \\ \hline \end{array}$
--	--	---

$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 95 \\ \times 7 \\ \hline \end{array}$
--	--	---

C.

Please complete the following as True Statements . . . using single digit numbers only.

$$35 = \underline{4 \times } + \underline{} \quad \text{D.}$$

$$40 = \underline{6 \times } + \underline{}$$

$$70 = \underline{8 \times } \overset{\text{note}}{\downarrow} \underline{}$$

$$37 = \underline{5 \times } + \underline{} \quad \text{E.}$$

$$75 = \underline{9 \times } + \underline{} \quad \text{I.}$$

$$53 = \underline{7 \times } - \underline{} \quad \text{F.}$$

$$52 = \underline{8 \times } + \underline{} \quad \text{F.}$$

$$39 = \underline{5 \times } + \underline{}$$

$$33 = \underline{4 \times } - \underline{}$$

$$59 = \underline{6 \times } + \underline{} \quad \text{G.}$$

$$70 = \underline{8 \times } + \underline{} \quad \text{D.}$$

$$51 = \underline{8 \times } - \underline{} \quad \text{G.}$$

$$44 = \underline{8 \times } + \underline{}$$

$$47 = \underline{5 \times } + \underline{}$$

$$75 = \underline{9 \times } - \underline{} \quad \text{H.}$$

$$66 = \underline{9 \times } + \underline{} \quad \text{H.}$$

$$53 = \underline{6 \times } + \underline{} \quad \text{E.}$$

$$50 = \underline{7 \times } - \underline{} \quad \text{I.}$$

A.	B.	C.
252	679	665
609	518	336

G.	D.	H.	E.	I.	F.
7,5	8,3	7,3	7,2	8,6	8,3
9,5	8,6	9,6	8,5	8,3	6,4

BUILDING and USING TABLES

$\begin{array}{r} 14 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 14 \\ \times 1 \\ \hline 14 \end{array}$	$\begin{array}{r} 14 \\ \times 2 \\ \hline 28 \end{array}$	$\begin{array}{r} 14 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 9 \\ \hline \end{array}$
---	--	--	---	---	---	---	---	---	---

$\begin{array}{r} 14 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 14 \\ \times 10 \\ \hline 140 \end{array}$	$\begin{array}{r} 14 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 90 \\ \hline \end{array}$
---	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 14 \\ \times 28 \\ \hline 112 \\ 280 \\ \hline \end{array}$ A.	$\begin{array}{r} 14 \\ \times 57 \\ \hline \end{array}$ B.	$\begin{array}{r} 14 \\ \times 43 \\ \hline \end{array}$ C.	$\begin{array}{r} 14 \\ \times 58 \\ \hline \end{array}$ D.	$\begin{array}{r} 14 \\ \times 74 \\ \hline \end{array}$ D.
$\begin{array}{r} 14 \\ \times 63 \\ \hline \end{array}$ E.	$\begin{array}{r} 14 \\ \times 59 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 86 \\ \hline \end{array}$ F.	$\begin{array}{r} 14 \\ \times 91 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ \times 67 \\ \hline \end{array}$ G.

CHAIN REACTIONS

$5 \begin{array}{c} \circledast 2 \\ \circledast 3 \\ \div 2 \\ \div 3 \end{array} \begin{array}{c} 10 \\ \hline \end{array} \begin{array}{c} \circledast 3 \\ \circledast 2 \\ \div 3 \\ \div 2 \end{array} 5$	H.	I.	
$17 \begin{array}{c} \ominus 5 \\ \ominus 5 \end{array} \begin{array}{c} \circledast 3 \\ \circledast 2 \end{array} \begin{array}{c} \oplus 4 \\ \oplus 4 \end{array} \begin{array}{c} \div 2 \\ \div 5 \end{array} \begin{array}{c} \circledast 4 \\ \circledast 2 \end{array} 40$	J.		
$4 \begin{array}{c} \circledast 3 \\ \circledast 3 \end{array} \begin{array}{c} \div 3 \\ \div 2 \end{array} \begin{array}{c} \circledast 2 \\ \circledast 5 \end{array} \begin{array}{c} \ominus 25 \\ \ominus 25 \end{array} \begin{array}{c} \ominus 8 \\ \ominus 2 \end{array} 0$	K.	L.	
$20 \begin{array}{c} \oplus 9 \\ \oplus 9 \end{array} \begin{array}{c} \ominus 7 \\ \ominus 3 \end{array} \begin{array}{c} \div 2 \\ \div 2 \end{array} \begin{array}{c} \oplus 15 \\ \oplus 15 \end{array} \begin{array}{c} \ominus 8 \\ \ominus 8 \end{array} 21$		M.	

A.	F.	B.	J.	G.	C.	K.	H.	L.	D.	M.	I.	E.
392	1204	798	42	938	602	36	30	60	1036	37	5	882

BUILDING and USING TABLES

$\begin{array}{r} 29 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 1 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 9 \\ \hline \end{array}$
---	---	---	---	---	---	---	---	---	---

$\begin{array}{r} 29 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 10 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ \times 90 \\ \hline \end{array}$
---	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 29 \\ \times 29 \\ \hline \end{array}$ ----- ----- ----- _____ A.	$\begin{array}{r} 29 \\ \times 92 \\ \hline \end{array}$ ----- ----- ----- _____ B.	$\begin{array}{r} 29 \\ \times 83 \\ \hline \end{array}$ ----- ----- ----- _____ C.	$\begin{array}{r} 29 \\ \times 38 \\ \hline \end{array}$ ----- ----- ----- _____ A.	$\begin{array}{r} 29 \\ \times 55 \\ \hline \end{array}$ ----- ----- ----- _____
$\begin{array}{r} 29 \\ \times 46 \\ \hline \end{array}$ ----- ----- ----- _____ B.	$\begin{array}{r} 29 \\ \times 64 \\ \hline \end{array}$ ----- ----- ----- _____	$\begin{array}{r} 29 \\ \times 17 \\ \hline \end{array}$ ----- ----- ----- _____	$\begin{array}{r} 29 \\ \times 71 \\ \hline \end{array}$ ----- ----- ----- _____ C.	$\begin{array}{r} 29 \\ \times 88 \\ \hline \end{array}$ ----- ----- ----- _____

Please complete the following as True Statements . . . using single digit numbers only.

$40 = \frac{7 \times \quad}{\quad} + \text{---} \text{---}$ D.	$46 = \frac{5 \times \quad}{\quad} + \text{---} \text{---}$	$50 = \frac{7 \times \quad}{\quad} \overset{\text{note}}{\downarrow} \text{---} \text{---}$ F.
$40 = \frac{6 \times \quad}{\quad} + \text{---} \text{---}$ E.	$65 = \frac{9 \times \quad}{\quad} + \text{---} \text{---}$ I.	$40 = \frac{6 \times \quad}{\quad} - \text{---} \text{---}$ G.
$50 = \frac{7 \times \quad}{\quad} + \text{---} \text{---}$ F.	$65 = \frac{8 \times \quad}{\quad} + \text{---} \text{---}$ D.	$60 = \frac{8 \times \quad}{\quad} - \text{---} \text{---}$
$50 = \frac{8 \times \quad}{\quad} + \text{---} \text{---}$ G.	$38 = \frac{5 \times \quad}{\quad} + \text{---} \text{---}$	$60 = \frac{7 \times \quad}{\quad} - \text{---} \text{---}$ H.
$47 = \frac{7 \times \quad}{\quad} + \text{---} \text{---}$ H.	$85 = \frac{9 \times \quad}{\quad} + \text{---} \text{---}$ E.	$45 = \frac{6 \times \quad}{\quad} - \text{---} \text{---}$ I.
$60 = \frac{8 \times \quad}{\quad} + \text{---} \text{---}$	$85 = \frac{10 \times \quad}{\quad} + \text{---} \text{---}$	$99 = \frac{10 \times \quad}{\quad} - \text{---} \text{---}$

or	A.	B.	C.
	841	1334	2407
	1102	2668	2059

or	G.	D.	H.	E.	I.	F.
	7,2	5,5	6,5	9,4	7,2	8,6
	6,2	8,1	9,3	6,4	8,3	7,1

BUILDING and USING TABLES

$\begin{array}{r} 83 \\ \times 0 \end{array}$	$\begin{array}{r} 83 \\ \times 1 \end{array}$	$\begin{array}{r} 83 \\ \times 2 \end{array}$	$\begin{array}{r} 83 \\ \times 3 \end{array}$	$\begin{array}{r} 83 \\ \times 4 \end{array}$	$\begin{array}{r} 83 \\ \times 5 \end{array}$	$\begin{array}{r} 83 \\ \times 6 \end{array}$	$\begin{array}{r} 83 \\ \times 7 \end{array}$	$\begin{array}{r} 83 \\ \times 8 \end{array}$	$\begin{array}{r} 83 \\ \times 9 \end{array}$
---	---	---	---	---	---	---	---	---	---

$\begin{array}{r} 83 \\ \times 0 \end{array}$	$\begin{array}{r} 83 \\ \times 10 \end{array}$	$\begin{array}{r} 83 \\ \times 20 \end{array}$	$\begin{array}{r} 83 \\ \times 30 \end{array}$	$\begin{array}{r} 83 \\ \times 40 \end{array}$	$\begin{array}{r} 83 \\ \times 50 \end{array}$	$\begin{array}{r} 83 \\ \times 60 \end{array}$	$\begin{array}{r} 83 \\ \times 70 \end{array}$	$\begin{array}{r} 83 \\ \times 80 \end{array}$	$\begin{array}{r} 83 \\ \times 90 \end{array}$
---	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 83 \\ \times 13 \\ \hline \text{-----} \\ \hline \end{array}$ A.	$\begin{array}{r} 83 \\ \times 31 \\ \hline \text{-----} \\ \hline \end{array}$ B.	$\begin{array}{r} 83 \\ \times 76 \\ \hline \text{-----} \\ \hline \end{array}$ C.	$\begin{array}{r} 83 \\ \times 67 \\ \hline \text{-----} \\ \hline \end{array}$ D.	$\begin{array}{r} 83 \\ \times 55 \\ \hline \text{-----} \\ \hline \end{array}$
$\begin{array}{r} 83 \\ \times 28 \\ \hline \text{-----} \\ \hline \end{array}$ E.	$\begin{array}{r} 83 \\ \times 82 \\ \hline \text{-----} \\ \hline \end{array}$	$\begin{array}{r} 83 \\ \times 49 \\ \hline \text{-----} \\ \hline \end{array}$ F.	$\begin{array}{r} 83 \\ \times 94 \\ \hline \text{-----} \\ \hline \end{array}$	$\begin{array}{r} 83 \\ \times 65 \\ \hline \text{-----} \\ \hline \end{array}$ G.

CHAIN REACTIONS

17

8 (+9) (-7) 10 (+12) (+13) (÷5) (÷7) (x7) (x9) 63
H.

43 (-8) (-2) (-4) (-6) (-9) (-1) (-7) (-6) (+7) (x8) 56
I.

12 (x3) (÷4) (x4) (÷3) (x5) (÷6) (x6) (÷5) (x10) (÷3) 40
J. K.

12 (÷4) (x3) (÷3) (x4) (÷6) (x5) (÷5) (x6) (÷3) (x3) 12
L. M.

1 (x2) (x5) (x2) (x5) (x2) (x5) 1,000

A.	F.	J.	B.	G.	K.	C.	H.	L.	D.	I.	M.	E.
1079	4067	12	2573	5395	12	6308	35	12	5561	33	12	2324

BUILDING and USING TABLES

$\begin{array}{r} 23 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 1 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 9 \\ \hline \end{array}$
---	---	---	---	---	---	---	---	---	---

$\begin{array}{r} 23 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 10 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 90 \\ \hline \end{array}$
---	--	--	--	--	--	--	--	--	--

$\begin{array}{r} \\ \times 43 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 28 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 58 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 86 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 74 \\ \hline \end{array}$
$\begin{array}{r} \\ \times 91 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 67 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 99 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 65 \\ \hline \end{array}$	$\begin{array}{r} \\ \times 59 \\ \hline \end{array}$

Please complete the following as True Statements . . .
using single digit numbers only.

$35 = \underline{4 \times } + \underline{}$	$78 = \underline{8 \times } + \underline{}$	$67 = \underline{9 \times } + \underline{}$
$35 = \underline{6 \times } + \underline{}$	$31 = \underline{7 \times } + \underline{}$	$39 = \underline{4 \times } + \underline{}$
$51 = \underline{7 \times } + \underline{}$	$84 = \underline{9 \times } + \underline{}$	$75 = \underline{9 \times } + \underline{}$
$57 = \underline{9 \times } + \underline{}$	$38 = \underline{5 \times } + \underline{}$	$43 = \underline{5 \times } + \underline{}$
$27 = \underline{4 \times } + \underline{}$	$40 = \underline{6 \times } + \underline{}$	$60 = \underline{8 \times } + \underline{}$
$67 = \underline{8 \times } + \underline{}$	$48 = \underline{5 \times } + \underline{}$	$59 = \underline{6 \times } + \underline{}$

“Check List Addition”

Please use the smallest whole numbers possible in the boxes.

32 16 8 4 2 1
 7
 A. $(1 \times 4) + (1 \times 2) + (1 \times 1) = 7$

27 9 3 1
 8
 E. $(2 \times 3) + (2 \times 1) = 8$

125 25 5 1
 20

32 16 8 4 2 1
 14
 B.

27 9 3 1
 16

125 25 5 1
 40
 F.

32 16 8 4 2 1
 21
 C.

27 9 3 1
 24
 G.

125 25 5 1
 60
 H.

32 16 8 4 2 1
 28
 D.

27 9 3 1
 32

125 25 5 1
 80
 I.

32 16 8 4 2 1
 35
 A.

27 9 3 1
 40
 J.

125 25 5 1
 100

32 16 8 4 2 1
 42
 B.

27 9 3 1
 48
 E.

125 25 5 1
 120

32 16 8 4 2 1
 49

27 9 3 1
 56
 F.

125 25 5 1
 140

32 16 8 4 2 1
 56
 C.

27 9 3 1
 64
 G.

125 25 5 1
 160
 H.

32 16 8 4 2 1
 63
 D.

27 9 3 1
 72
 I.

125 25 5 1
 180
 J.

A.	E.	I.	B.	F.	J.	C.	G.	H.	D.
0,0,0,1,1,1	0,0,2,2	2,2,0,0	1,0,1,0,1,0	2,0,0,2	1,1,1,1	1,1,1,0,0,0	2,1,0,1	0,2,2,0	0,1,1,1,0,0
1,0,0,0,1,1	1,2,1,0	0,3,1,0	0,0,1,1,1,0	0,1,3,0	1,2,1,0	0,1,0,1,0,1	0,2,2,0	1,1,2,0	1,1,1,1,1,1

“Check List Addition”

Please use the smallest whole numbers possible in the boxes.

16 4 | 1
 0 3 2 | 14
 (3x4)+(2x1)=14

16 4 | 1
 | | | 21
 A.

36 6 | 1
 | | | 22
 E.

36 6 | 1
 | | | 33
 F.

16 4 | 1
 | | | 24
 B.

16 4 | 1
 | | | 30
 C.

36 6 | 1
 | | | 42
 G.

36 6 | 1
 | | | 48
 H.

16 4 | 1
 | | | 36
 D.

16 4 | 1
 | | | 50
 D.

36 6 | 1
 | | | 73
 D.

36 6 | 1
 | | | 80
 D.

49 7 | 1
 | | | 20
 I.

49 7 | 1
 | | | 31
 J.

64 8 | 1
 | | | 15
 C.

64 8 | 1
 | | | 35
 D.

49 7 | 1
 | | | 25
 D.

49 7 | 1
 | | | 40
 D.

64 8 | 1
 | | | 60
 D.

64 8 | 1
 | | | 47
 E.

49 7 | 1
 | | | 48
 A.

49 7 | 1
 | | | 63
 B.

64 8 | 1
 | | | 89
 F.

64 8 | 1
 | | | 130
 G.

81 9 | 1
 | | | 44
 H.

81 9 | 1
 | | | 60
 I.

100 10 | 1
 | | | 87
 D.

100 10 | 1
 | | | 120
 D.

81 9 | 1
 | | | 52
 D.

81 9 | 1
 | | | 69
 D.

100 10 | 1
 | | | 715
 D.

100 10 | 1
 | | | 896
 D.

81 9 | 1
 | | | 80
 D.

81 9 | 1
 | | | 160
 J.

100 10 | 1
 | | | 640
 D.

100 10 | 1
 | | | 999
 D.

A.	E.	H.	B.	F.	I.	C.	G.	J.	D.
0,6,6	0,3,4	1,2,0	1,2,0	1,3,1	0,2,6	1,3,2	2,0,2	1,8,7	3,0,2
1,1,1	0,5,7	0,4,8	1,2,0	0,5,3	0,6,6	0,1,7	1,1,0	0,4,3	0,4,3

“Check List Addition”

Please use the smallest whole numbers possible in the boxes.

128 64 32 16 8 4 2 1
 35

A.

81 27 9 3 1
 35

B.

64 16 4 1
 35

C.

36 6 1
 35

49 7 1
 35

125 25 5 1
 35

D.

64 8 1
 35

81 9 1
 35

E.

128 64 32 16 8 4 2 1
 60

A.

81 27 9 3 1
 60

B.

64 16 4 1
 60

C.

36 6 1
 60

D.

49 7 1
 60

125 25 5 1
 60

64 8 1
 60

81 9 1
 60

E.

128 64 32 16 8 4 2 1
 80

A.

81 27 9 3 1
 80

B.

64 16 4 1
 80

36 6 1
 80

49 7 1
 80

C.

125 25 5 1
 80

64 8 1
 80

81 9 1
 80

E.

A.	B.	C.	D.	E.
0,1,0,1,0,0,0,0	0,2,0,2,0	0,2,0,3	1,4,0	0,3,8
0,0,1,0,0,0,1,1	0,2,2,2,2	1,4,3	0,1,2,0	0,8,8
0,0,1,1,1,1,0,0	0,1,0,2,2	0,3,3,0	1,2,0	0,6,6

CHANGE and STAMP Problems

Rules: Show a combination of Coins or Stamps for the amounts shown . . . with exactly the number of Coins or Stamps indicated.

50¢ 25¢ 10¢ 5¢ 1¢ Number of COINS

A.						23¢ (7)
B.						23¢ (10)
C.						23¢ (15)

11¢ 8¢ 4¢ 3¢ 1¢ Number of STAMPS

D.						16¢ (6)
E.						16¢ (5)
F.						16¢ (4)

50¢ 25¢ 10¢ 5¢ 1¢

A.						35¢ (11)
						35¢ (9)
B.						35¢ (5)

11¢ 8¢ 4¢ 3¢ 1¢

C.						25¢ (8)
D.						25¢ (4)
						25¢ (5)

50¢ 25¢ 10¢ 5¢ 1¢

E.						41¢ (23)
F.						41¢ (16)
						41¢ (13)

12¢ 9¢ 5¢ 3¢ 2¢

A.						31¢ (8)
						31¢ (6)
B.						31¢ (5)

50¢ 25¢ 10¢ 5¢ 1¢

C.						57¢ (4)
						57¢ (17)
D.						57¢ (24)

20¢ 11¢ 5¢ 4¢ 3¢

						45¢ (9)
E.						45¢ (6)
F.						45¢ (10)

There may be other combinations than those shown below.

A.	B.	C.	D.	E.	F.
0,0,0,4,3	1,1,1,1,1	0,0,1,7,0	0,0,2,2,2	1,1,0,2,2	0,0,1,4,11
0,0,5,0,3	0,0,2,3,0	0,0,0,2,13	0,0,1,6,17	0,1,0,2,2	0,1,2,3,4
0,1,0,0,10	0,0,1,1,8	1,0,0,1,2	0,3,0,0,1	0,0,2,0,21	1,0,0,1,2

“Check List Addition”

Please use the smallest whole numbers possible in the boxes.

$$\begin{array}{cccccccc|c} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 & 40 \\ \hline \square & \square & \square & \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 81 & 27 & 9 & 3 & 1 & 40 \\ \hline \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 64 & 16 & 4 & 1 & 38 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 36 & 6 & 1 & 32 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 49 & 7 & 1 & 37 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 125 & 25 & 5 & 1 & 86 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 64 & 8 & 1 & 57 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 81 & 9 & 1 & 69 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{cccccccc|c} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 & 132 \\ \hline \square & \square & \square & \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 81 & 27 & 9 & 3 & 1 & 98 \\ \hline \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 64 & 16 & 4 & 1 & 100 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 36 & 6 & 1 & 75 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 49 & 7 & 1 & 89 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 125 & 25 & 5 & 1 & 180 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 64 & 8 & 1 & 62 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 81 & 9 & 1 & 75 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{cccccccc|c} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 & 77 \\ \hline \square & \square & \square & \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 81 & 27 & 9 & 3 & 1 & 63 \\ \hline \square & \square & \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 64 & 16 & 4 & 1 & 56 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 36 & 6 & 1 & 85 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 49 & 7 & 1 & 99 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{cccc|c} 125 & 25 & 5 & 1 & 124 \\ \hline \square & \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 64 & 8 & 1 & 127 \\ \hline \square & \square & \square & \end{array}$$

$$\begin{array}{ccc|c} 81 & 9 & 1 & 160 \\ \hline \square & \square & \square & \end{array}$$



How do you feel ?

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$
--	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 8 \\ \hline \end{array}$
--	---	---	---	---	---	---	---	---	---

Please use the "scribble space" . . . if you want to.

$\begin{array}{r} 21 \\ 8 \overline{) 168} \\ \underline{+ 160} \\ 168 \end{array}$	$\begin{array}{r} \text{A.} \\ 8 \overline{) 376} \\ \underline{+ 320} \\ 56 \end{array}$	$\begin{array}{r} \text{B.} \\ 8 \overline{) 104} \\ \underline{+ 96} \\ 8 \end{array}$
$\begin{array}{r} \text{C.} \\ 8 \overline{) 304} \\ \underline{+ 240} \\ 64 \end{array}$	$\begin{array}{r} \text{D.} \\ 8 \overline{) 752} \\ \underline{+ 640} \\ 112 \end{array}$	$\begin{array}{r} \text{E.} \\ 8 \overline{) 520} \\ \underline{+ 400} \\ 120 \end{array}$
$\begin{array}{r} \text{F.} \\ 8 \overline{) 688} \\ \underline{+ 560} \\ 128 \end{array}$	$\begin{array}{r} 8 \overline{) 472} \\ \underline{+ 360} \\ 112 \end{array}$	$\begin{array}{r} 8 \overline{) 576} \\ \underline{+ 448} \\ 128 \end{array}$

On your Own . . . all the way.

$\begin{array}{r} 10 \\ \times 8 \\ \hline 80 \end{array}$	$\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$	$\begin{array}{r} 12 \\ \times 8 \\ \hline 96 \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ \times 8 \\ \hline \end{array}$
$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} \times 8 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ \times 8 \\ \hline \end{array}$

A.	B.	C.	D.	E.	F.
47	13	38	94	65	86

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$
--	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 5 \\ \hline \end{array}$
--	---	---	---	---	---	---	---	---	---

Please use the "scribble space" . . . if you want to.

$5 \overline{) 105}$ A.	$5 \overline{) 210}$ B.	$5 \overline{) 345}$ C.
$5 \overline{) 125}$ D.	$5 \overline{) 240}$ E.	$5 \overline{) 285}$ F.
$5 \overline{) 475}$ G.	$5 \overline{) 385}$ H.	$5 \overline{) 310}$ I.

CHAIN REACTIONS

7	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	71
8	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	64
10	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	82
5	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	53

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.
19	40	69	12	48	57	83	77	88	40	36	45	30
21	42	61	25	50	46	95	99	62	39	35	46	29

BUILDING and USING TABLES

$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$
--	--	--	--	--	--	--	--	--	--

$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 9 \\ \hline \end{array}$
--	---	---	---	---	---	---	---	---	---

Please use the "scribble space" . . . if you want to.

A. $9 \overline{) 108}$	B. $9 \overline{) 279}$	C. $9 \overline{) 126}$
D. $9 \overline{) 819}$	E. $9 \overline{) 675}$	F. $9 \overline{) 243}$
G. $9 \overline{) 504}$	H. $9 \overline{) 612}$	I. $9 \overline{) 774}$

CHAIN REACTIONS

7	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	(+6)	55
8	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	(+9)	80
6	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	(+7)	62
9	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	(+8)	73

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.
13	32	14	89	75	27	56	65	85	31	45	35	40
12	31	12	91	68	30	55	68	86	30	44	34	41

"Check List Addition"

Please use the smallest whole numbers possible in the boxes.

128 64 32 16 8 4 2 1
 50

A.

81 27 9 3 1
 50

B.

64 16 4 1
 50

C.

36 6 1
 50

D.

49 7 1
 50

125 25 5 1
 50

64 8 1
 50

E.

81 9 1
 50

128 64 32 16 8 4 2 1
 75

A.

81 27 9 3 1
 75

B.

64 16 4 1
 75

C.

36 6 1
 75

D.

49 7 1
 75

D.

125 25 5 1
 75

64 8 1
 75

E.

81 9 1
 75

E.

128 64 32 16 8 4 2 1
 100

A.

81 27 9 3 1
 100

B.

64 16 4 1
 100

C.

36 6 1
 100

D.

49 7 1
 100

D.

125 25 5 1
 100

C.

64 8 1
 100

C.

81 9 1
 100

E.

A.	B.	C.	D.	E.
0,1,1,0,0,1,0,0	0,2,2,1,0	0,3,0,2	1,2,2	0,8,3
0,1,0,0,1,0,1,1	0,1,2,1,2	1,4,4	1,3,5	0,6,2
0,0,1,1,0,0,1,0	1,0,2,0,1	1,0,2,3	2,4,4	1,2,1

BUILDING and USING TABLES

$\begin{array}{r} 47 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 47 \\ \times 1 \\ \hline 47 \end{array}$	$\begin{array}{r} 47 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ \times 9 \\ \hline \end{array}$
---	--	---	---	---	---	---	---	---	---

$\begin{array}{r} 47 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 47 \\ \times 10 \\ \hline 47 \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 20 \\ \hline 94 \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 30 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 40 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 50 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 60 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 70 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 80 \\ \hline \cdot \end{array}$	$\begin{array}{r} 47 \\ \times 90 \\ \hline \cdot \end{array}$
---	---	---	--	--	--	--	--	--	--

Since "0" will be written where you find a "•", you can leave a space.

$\begin{array}{r} 47 \\ \times \quad A. \\ \hline 376 \\ \hline 94 \cdot \\ \hline 1316 \end{array}$	$\begin{array}{r} 47 \\ \times \quad B. \\ \hline \hline \hline \cdot \\ \hline 3572 \end{array}$	$\begin{array}{r} 47 \\ \times \quad C. \\ \hline \hline \hline \cdot \\ \hline 1833 \end{array}$	$\begin{array}{r} 47 \\ \times \quad D. \\ \hline \hline \hline \cdot \\ \hline 4324 \end{array}$	$\begin{array}{r} 47 \\ \times \quad \hline \hline \hline \cdot \\ \hline 2209 \end{array}$
$\begin{array}{r} 47 \\ \times \quad E. \\ \hline \hline \hline \cdot \\ \hline 4465 \end{array}$	$\begin{array}{r} 47 \\ \times \quad \hline \hline \hline \cdot \\ \hline 2632 \end{array}$	$\begin{array}{r} 47 \\ \times \quad F. \\ \hline \hline \hline \cdot \\ \hline 3478 \end{array}$	$\begin{array}{r} 47 \\ \times \quad \hline \hline \hline \cdot \\ \hline 3149 \end{array}$	$\begin{array}{r} 47 \\ \times \quad G. \\ \hline \hline \hline \cdot \\ \hline 3901 \end{array}$

CHAIN REACTIONS

$32 \div 4$	$\times 2$	$\div 4$	$\times 2$	$\div 4$	$\times 2$	$\div 4$	$\times 2$	$\div 4$	$\times 2$	2
H. I.										
48 $\div 6$	$\times 3$	$\div 6$	$\times 3$	$\div 6$	$\times 3$	$\div 6$	$\times 3$	$\times 6$	$\div 3$	6
J.										
64 $\div 8$	$\times 4$	$\div 8$	$\times 4$	$\div 8$	$\times 4$	$\div 8$	$\times 4$	$\times 4$	$\div 8$	2
K.										
80 $\div 10$	$\times 5$	$\div 10$	$\times 5$	$\div 10$	$\times 5$	$\div 10$	$\times 5$	$\times 10$	$\div 5$	10
L.										

I.	E.	A.	J.	F.	B.	K.	G.	C.	L.	H.	D.
8	95	28	24	74	76	32	83	39	40	16	92

BUILDING and USING TABLES

$\begin{array}{r} 25 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 25 \\ \times 1 \\ \hline 25 \end{array}$	$\begin{array}{r} 25 \\ \times 2 \\ \hline 50 \end{array}$	$\begin{array}{r} 25 \\ \times 3 \\ \hline 75 \end{array}$	$\begin{array}{r} 25 \\ \times 4 \\ \hline 100 \end{array}$	$\begin{array}{r} 25 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 9 \\ \hline \end{array}$
$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 10 \\ \hline 250 \end{array}$	$\begin{array}{r} 25 \\ \times 20 \\ \hline 500 \end{array}$	$\begin{array}{r} 25 \\ \times 30 \\ \hline 750 \end{array}$	$\begin{array}{r} 25 \\ \times 40 \\ \hline 1000 \end{array}$	$\begin{array}{r} 25 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ \times 90 \\ \hline \end{array}$

A. $\begin{array}{r} 25 \overline{) 1075} \\ \underline{100} \\ 75 \\ \underline{75} \\ 0 \end{array}$

B. $\begin{array}{r} 25 \overline{) 950} \\ \underline{75} \\ 200 \\ \underline{200} \\ 0 \end{array}$

C. $\begin{array}{r} 25 \overline{) 1875} \\ \underline{125} \\ 625 \\ \underline{625} \\ 0 \end{array}$

$\begin{array}{r} 25 \overline{) 1700} \\ \underline{125} \\ 450 \\ \underline{450} \\ 0 \end{array}$

D. $\begin{array}{r} 25 \overline{) 2300} \\ \underline{500} \\ 1800 \\ \underline{1750} \\ 500 \end{array}$

$\begin{array}{r} 25 \overline{) 2100} \\ \underline{500} \\ 1600 \\ \underline{1500} \\ 1000 \end{array}$

E. $\begin{array}{r} 25 \overline{) 1625} \\ \underline{125} \\ 375 \\ \underline{375} \\ 0 \end{array}$

F. $\begin{array}{r} 25 \overline{) 2425} \\ \underline{500} \\ 1925 \\ \underline{1900} \\ 250 \end{array}$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 1 \ 1 \ 2 \end{array} \ 92$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 3 \ 3 \end{array}$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 7 \ 7 \end{array}$
G.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 6 \ 6 \end{array}$
H.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 5 \ 8 \end{array}$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 8 \ 8 \end{array}$
I.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 1 \ 1 \ 6 \end{array}$
J.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ 0 \ 4 \ 7 \end{array}$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 35$
K.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 100$
L.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 75$
M.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 42$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 85$
N.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 62$

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 71$
O.

$\begin{array}{r} 81 \ 9 \ 1 \\ | \ | \ | \\ \end{array} \ 50$

F.	A.	E.	B.	D.	C.	G.	L.	H.	M.	I.	N.	J.	O.	K.
97	43	65	38	92	75	70	1,2,1	60	0,8,3	80	0,9,4	96	0,7,8	0,3,8

CHANGE and STAMP Problems

Rules: Show a Combination of Coins or Stamps
for the amounts shown . . . with exactly the
number of Coins or Stamps indicated.

	50¢	25¢	10¢	5¢	1¢		Number of COINS ↓
A.						47 ¢	(15)
B.						95 ¢	(9)
C.						68 ¢	(32)

	16¢	8¢	4¢	2¢	1¢		Number of STAMPS ↓
D.						31 ¢	(5)
E.						23 ¢	(4)
F.						40 ¢	(7)

	50¢	25¢	10¢	5¢	1¢		
A.						\$ 1.40	(11)
						\$ 1.20	(12)
B.						\$ 1.71	(13)

	8¢	27¢	9¢	3¢	1¢		
						50 ¢	(6)
C.						80 ¢	(8)
D.						\$ 1.00	(8)

	50¢	25¢	10¢	5¢	1¢		
E.						71 ¢	(25)
F.						\$ 1.60	(15)
						90 ¢	(30)

	13¢	12¢	9¢	5¢	2¢		
						27 ¢	(4)
A.						49 ¢	(5)
B.						62 ¢	(11)

	50¢	25¢	10¢	5¢	1¢		
C.						\$ 1.82	(10)
						\$ 2.30	(12)
D.						\$ 1.55	(15)

	9¢	8¢	7¢	4¢	3¢		
E.						57 ¢	(13)
F.						69 ¢	(13)
						75 ¢	(13)

There may be other combinations than those shown below.

A.	B.	C.	D.	E.	F.
1,0,4,0,0	1,1,1,1,5	2,2,2,2,2	1,0,1,2,4	1,0,1,1,1	1,3,0,9,0
0,0,0,8,7	1,1,9,1,1	0,0,0,9,23	1,2,3,4,5	0,0,2,7,16	0,3,4,0,0
0,5,1,0,5	0,2,2,2,5	0,2,2,2,2	1,1,1,1,1	0,2,2,0,9	1,4,0,0,10

BUILDING and USING TABLES

$\begin{array}{r} 18 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 1 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 9 \\ \hline \end{array}$
---	---	---	---	---	---	---	---	---	---

$\begin{array}{r} 18 \\ \times 0 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 10 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ \times 90 \\ \hline \end{array}$
---	--	--	--	--	--	--	--	--	--

$$18 \overline{) 378}$$

$$18 \overline{) 1314}$$

$$18 \overline{) 882}$$

$$18 \overline{) 1170}$$

$$18 \overline{) 1044}$$

$$18 \overline{) 1512}$$

$$18 \overline{) 666}$$

$$18 \overline{) 1692}$$

36	6	|	
		|	34

49	7	|	
		|	45

64	8	|	
		|	63

81	9	|	
		|	69

36	6	|	
		|	57

49	7	|	
		|	70

64	8	|	
		|	104

81	9	|	
		|	80

36	6	|	
		|	90

49	7	|	
		|	100

64	8	|	
		|	55

81	9	|	
		|	99

36	6	|	
		|	71

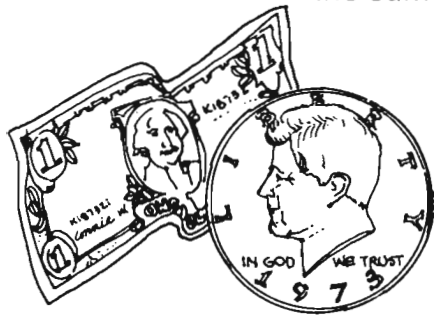
49	7	|	
		|	91

64	8	|	
		|	154



How do you feel?

DIFFERENT WAYS to Talk and Write about
the Same Amount of Money.



\$ 1.00
\$ 1
10 D. DIMES
100¢

\$.50
\$ $\frac{1}{2}$
5 D. DIMES
¢ A.

\$.25
\$ $\frac{1}{4}$
2 $\frac{1}{2}$ D.
¢ B.

\$.10
\$ $\frac{1}{10}$
D. C.
¢

\$.05
\$ $\frac{1}{20}$
$\frac{1}{2}$ D.
¢

\$.01
\$ $\frac{1}{100}$
$\frac{1}{10}$ D.
D. ¢

\$.
\$ $\frac{1}{5}$
2 D.
¢ F.

\$.
\$ $\frac{3}{10}$
D.
¢ G.

\$.
\$ $\frac{2}{5}$
D. A.
¢ B.

\$.
\$ $\frac{1}{2}$
D. C.
¢ D.

\$.
\$ $\frac{3}{5}$
D. E.
¢ F.

\$.
\$ $\frac{7}{10}$
D. G.
¢ A.

\$.
\$ $\frac{4}{5}$
D.
¢ B.

\$.
\$ $\frac{9}{10}$
D. D.
¢

\$.
\$ $\frac{1}{20}$
$\frac{1}{2}$ D.
5 ¢

\$.
\$ $\frac{3}{20}$
$1\frac{1}{2}$ D.
¢

\$.
\$
$2\frac{1}{2}$ D.
¢ B.

\$.
\$ $\frac{7}{20}$
$3\frac{1}{2}$ D.
¢

\$.
\$ $\frac{9}{20}$
$4\frac{1}{2}$ D.
¢ E.

\$.
\$
$5\frac{1}{2}$ D.
¢ G.

\$.
\$ $\frac{1}{100}$
$\frac{1}{10}$ D.
1 ¢

\$.
\$ $\frac{1}{50}$
D. C.
2 ¢

\$.
\$ $\frac{3}{100}$
D. E.
3 ¢

\$.
\$ $\frac{1}{25}$
D. G.
4 ¢

A.	B.	C.	D.	E.	F.	G.
4	25	.35	1	.05	60	.25
50	80	5	.03	6	20	55
$\frac{5}{20}, \frac{1}{4}$	.02	1	9	45	.04	$\frac{4}{10}, \frac{2}{5}$
70	40	$\frac{2}{10}, \frac{1}{5}$	.45	.20	.15	7
.01	25	.90	50	$\frac{3}{10}$	55	30

\$.10
\$ $\frac{1}{10}$
1 D.
10 ¢

\$.
\$ $\frac{1}{5}$
2 D.
¢ A.

\$.
\$ $\frac{3}{10}$
D.
¢ B.

\$.
\$ $\frac{2}{5}$
D.
¢ C.

\$.
\$ $\frac{1}{2}$
D.
¢ D.

\$.
\$ $\frac{3}{5}$
D.
¢ E.

\$.
\$ $\frac{7}{10}$
D.
¢ F.

\$.
\$ $\frac{1}{5}$
D.
¢ G.

+

\$.
\$ $\frac{1}{10}$
D.
¢ H.

=

\$.
\$
D.
¢

\$.
\$ $\frac{3}{10}$
D.
¢ D.

+

\$.
\$ $\frac{1}{5}$
D.
¢ E.

=

\$.
\$
D.
¢

\$.
\$ $\frac{2}{5}$
D.
¢ A.

+

\$.
\$ $\frac{2}{5}$
D.
¢ B.

=

\$.
\$
D.
¢

\$.
\$ $\frac{3}{5}$
D.
¢ F.

+

\$.
\$ $\frac{1}{10}$
D.
¢ G.

=

\$.
\$
D.
¢

\$.
\$ $\frac{3}{10}$
D.
¢

Multiplied by 2 =

\$.
\$
D.
¢

\$.
\$ $\frac{1}{10}$
D.
¢

Multiplied by 5 =

\$.
\$
D.
¢

\$.
\$ $\frac{9}{10}$
D.
¢

Divided by 3 =

\$.
\$
D.
¢

A.	B.	C.	D.	E.	F.	G.	H.
20	$\frac{3}{10}$	.80	30	60	.50	10	$\frac{3}{10}$
40	7	$\frac{3}{5}$	50	20	$\frac{1}{2}$	20	5
30	30	3	.60	8	70	.30	.70
$\frac{7}{10}$	40	40	$\frac{4}{5}$	50	60	$\frac{1}{2}$	10

\$.
\$ $\frac{4}{5}$
D.
¢ A.

\$.
\$ $\frac{9}{10}$
D.
¢ B.

\$.
\$ 1
D.
¢ C.

\$.
\$ $1\frac{1}{10}$
D.
¢ D.

\$.
\$ $1\frac{1}{5}$
D.
¢ E.

\$.
\$ $1\frac{3}{10}$
D.
¢ F.

\$.
\$ $1\frac{2}{5}$
D.
¢ G.

\$.
\$ $1\frac{1}{10}$
D.
¢ H.

−

\$.
\$ $\frac{1}{5}$
D.
¢ A.

=

\$.
\$
D.
¢

\$.
\$ 1
D.
¢ B.

−

\$.
\$ $\frac{7}{10}$
D.
¢ E.

=

\$.
\$
D.
¢

\$.
\$ $1\frac{2}{5}$
D.
¢ A.

−

\$.
\$ $1\frac{1}{10}$
D.
¢ B.

=

\$.
\$
D.
¢ E.

\$.
\$ $\frac{1}{2}$
D.
¢ F.

−

\$.
\$ $\frac{2}{5}$
D.
¢ G.

=

\$.
\$
D.
¢

\$.
\$ $\frac{1}{5}$
D.
¢

Multiplied by 6 =

\$.
\$
D.
¢

\$.
\$ $\frac{3}{10}$
D.
¢

Multiplied by 4 =

\$.
\$
D.
¢

\$.
\$ $1\frac{1}{5}$
D.
¢

Divided by 2 =

\$.
\$
D.
¢

A.	B.	C.	D.	E.	F.	G.	H.
80	1	1.20	110	3	.30	$\frac{3}{10}$	90
140	110	100	$\frac{9}{10}$	120	130	40	3
20	90	.30	$1\frac{1}{5}$	70	50	140	$\frac{3}{5}$
$\frac{1}{10}$	100	.90	$\frac{3}{10}$	120	$1\frac{1}{5}$	.60	110

CHANGE and STAMP Problems

Rules: Show a combination of Coins or Stamps for the amounts shown . . . with exactly the number of Coins or Stamps indicated.

A.

50¢	25¢	10¢	5¢	1¢						

Number of COINS
↓
\$ 1.30 (12)
\$ 1.50 (16)
\$ 1.40 (16)

B.

9¢	8¢	7¢	6¢	5¢						

Number of STAMPS
↓
58¢ (10)
60¢ (8)
57¢ (7)

C.

50¢	25¢	10¢	5¢	1¢						

\$ 1.90 (18)
\$ 2.20 (20)
\$ 1.90 (23)

D.

9¢	8¢	7¢	6¢	5¢						

69¢ (8)
72¢ (12)
71¢ (11)

E.

50¢	25¢	10¢	5¢	1¢						

\$ 1.14 (27)
\$ 3.20 (24)
\$ 5.60 (21)

F.

9¢	8¢	7¢	6¢	5¢						

82¢ (10)
72¢ (12)
70¢ (10)

A.

50¢	25¢	10¢	5¢	1¢						

\$ 2.45 (29)
\$ 2.35 (27)
\$ 2.00 (34)

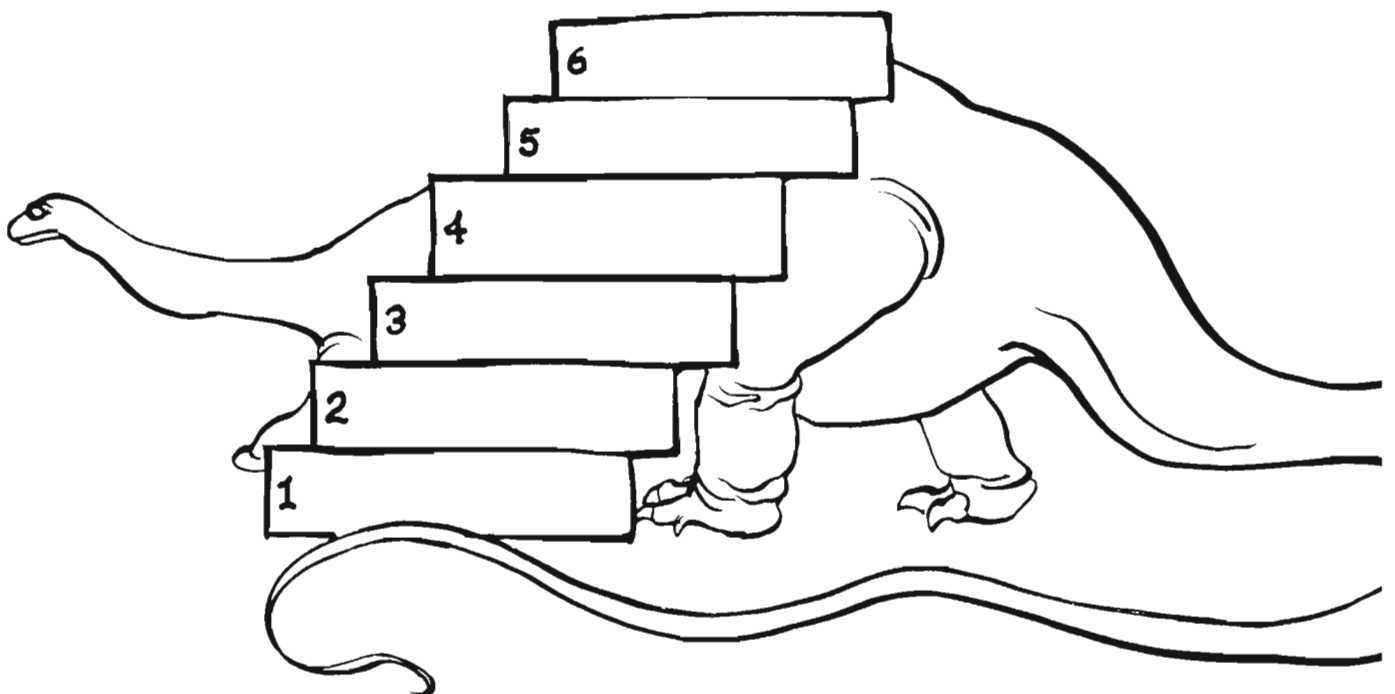
B.

9¢	8¢	7¢	6¢	5¢						

\$ 1.00 (12)
\$ 1.00 (14)
\$ 1.00 (15)

There may be other combinations than those shown below.

A.	B.	C.	D.	E.	F.
2,2,0,9,2	2,0,0,0,8	0,0,4,4,4	0,5,2,7,1	1,2,3,4,5	8,0,0,0,2
1,1,1,9,0	2,2,2,2,2	3,0,0,5,15	6,1,1,0,0	5,4,3,2,1	11,0,0,0,0
0,0,20,7,0	9,0,2,0,1	0,3,0,8,0	0,0,20,0,0	0,8,8,8,0	1,3,4,6,1





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