CSMP Mathematics for the Intermediate Grades Part IV

Worksheets

What's In This Book?

This book contains all the worksheets you will need for *CSMP for the Intermediate Grades, Part IV*. Worksheets are labeled with the same letter and number as the lessons with which they are used. In this book, they are in the following order:

N Worksheets

N2	N10	N23
N3	N12	N24
N4	N14	N26
N5	N15	N27
N6	N16	N30
N7	N19	N31
N8	N20	N34
N9	N22	N35

L Worksheets

L1	L4	L7
L3	L6	L10

G Worksheets

G2	G4
G3	G6

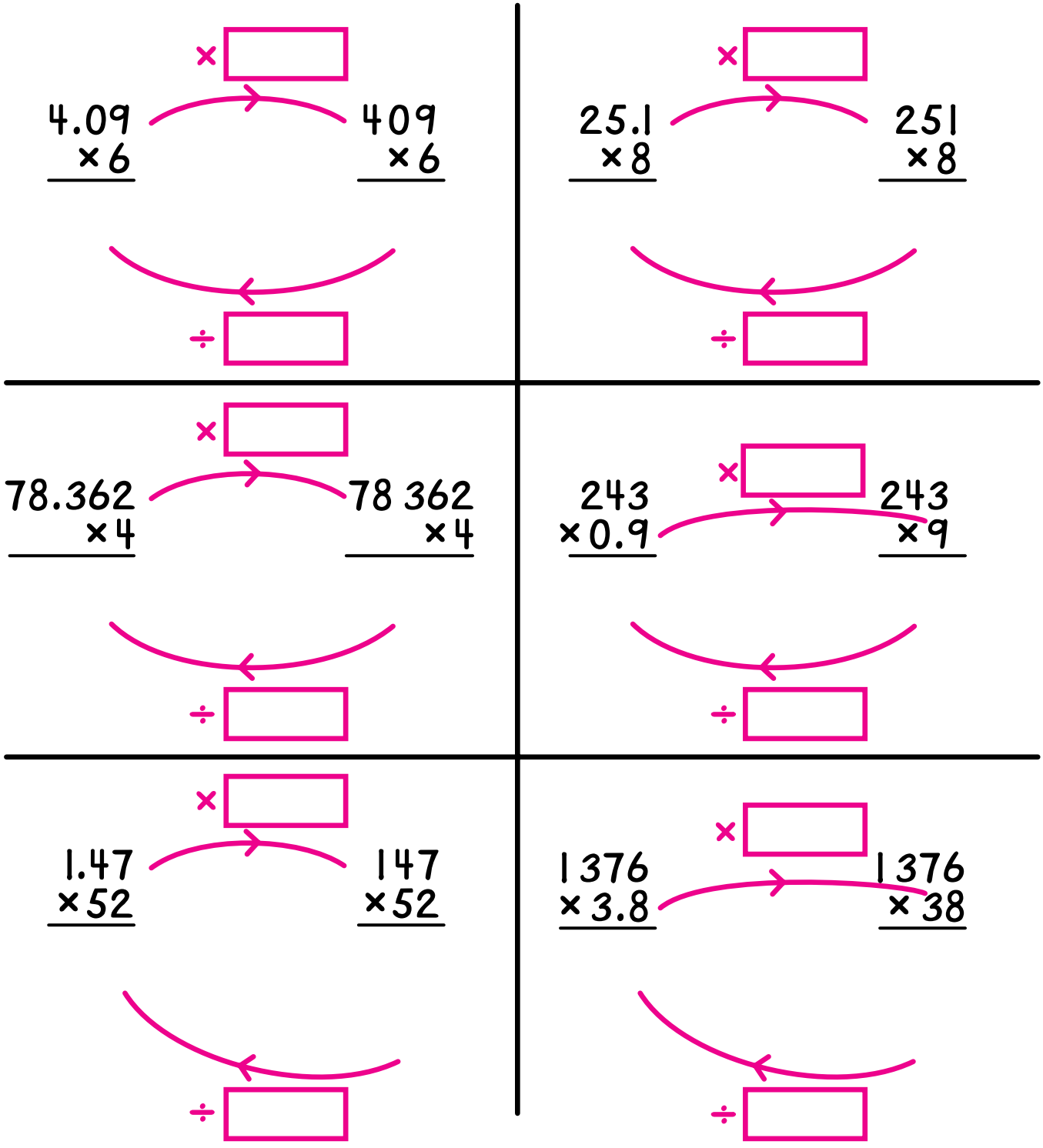
P Worksheets

P4	P7	P9
P5	P8	

Name _____

N2 *

In each example, first do the multiplication problem on the right, fill in the boxes for the arrows, and then use these answers to do the multiplication problem on the left.



Name _____

N2 **

A family of four uses 2.57 liters of milk a day on average.
How much milk will they consume in January?

Maia spends 1.48 hours a day on average eating meals.
How many hours will she spend eating in a year (365 days)?

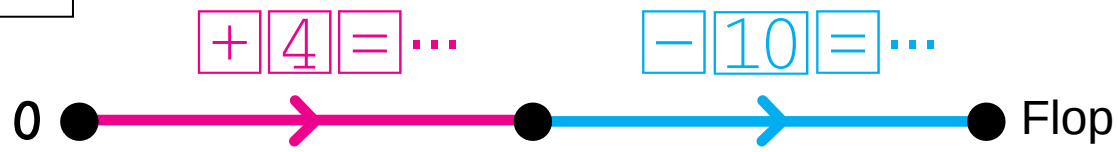
Each day Gus spends $1.65 on lunch at school. How much will Gus spend on lunch during the school year if he buys lunch 170 days?

Name _____

N3 *

Flop is a secret number.

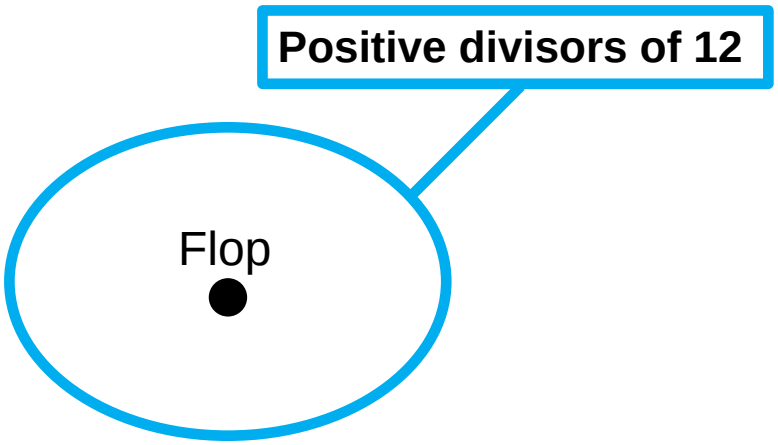
Clue 1



Flop could be _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, and so on.

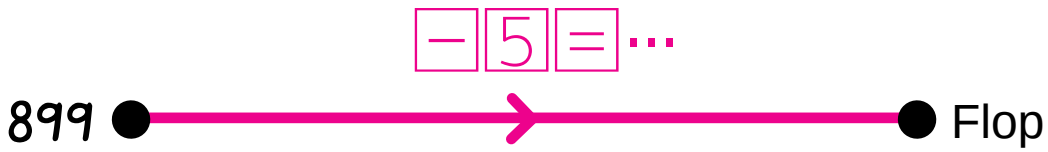
What do you notice about Flop?_____

Clue 2



Flop could be _____, _____, _____, or _____.

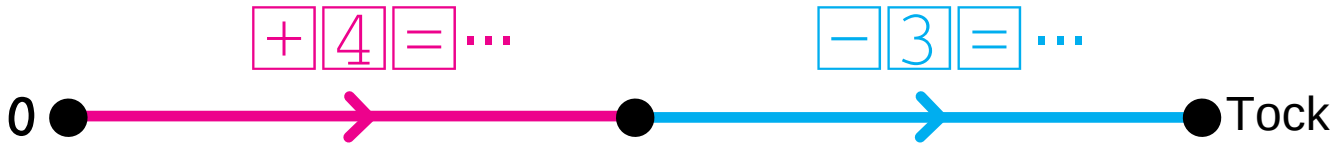
Clue 3



Who is Flop? _____

Name _____

N3 **



Could Tock be 1?_____ 2?_____ 3?_____ 4?_____ 5?_____

6?_____ 7?_____ 8?_____ 9?_____ 10?_____

Is there any whole number that Tock cannot be?_____

Could Tock be ⁻1?_____ ⁻2?_____ ⁻3?_____ ⁻4?_____

⁻5?_____ ⁻6?_____

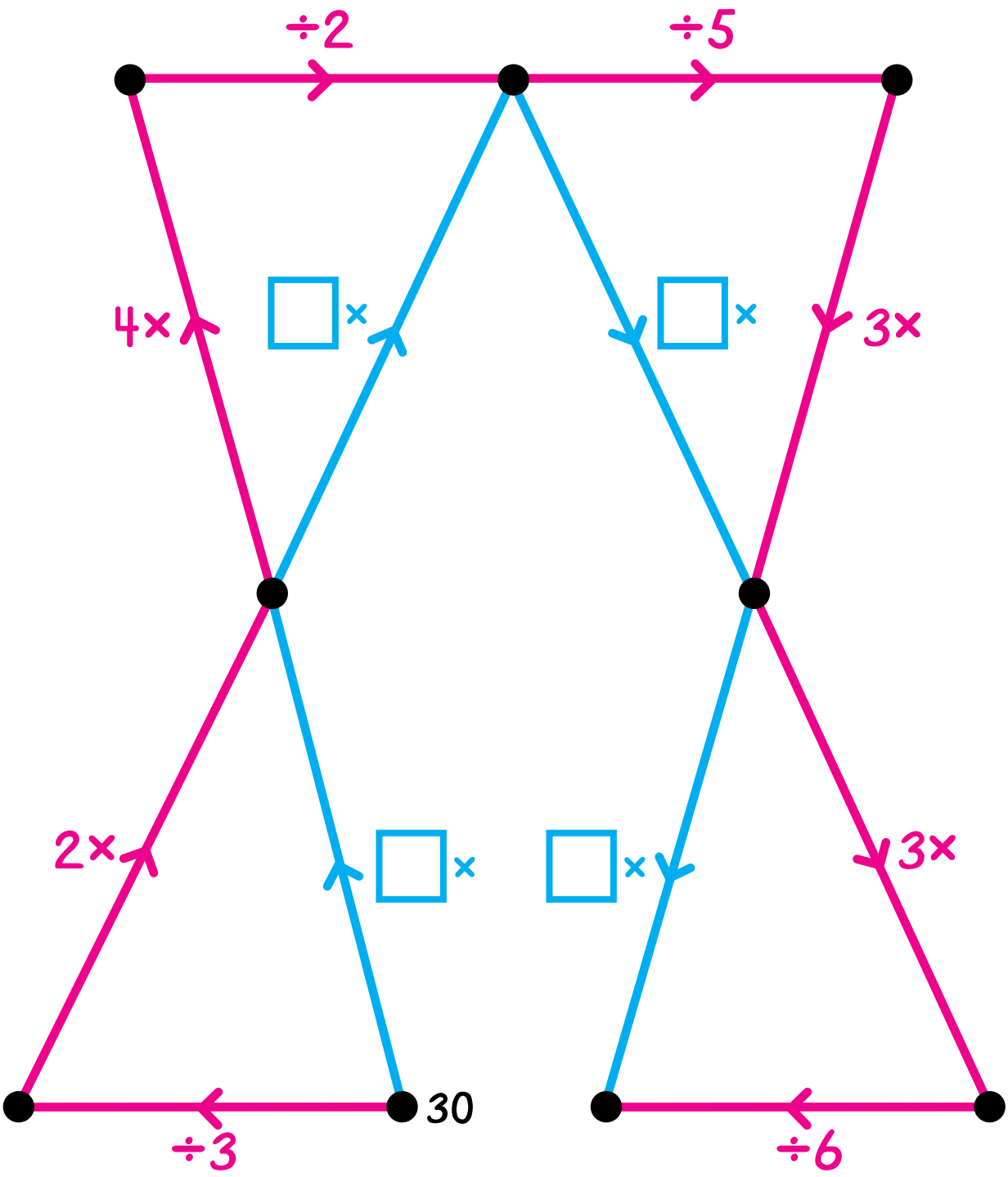
What do you notice about Tock?_____

_____

Name _____

N4 *

Label each dot and fill in the box for each blue arrow.

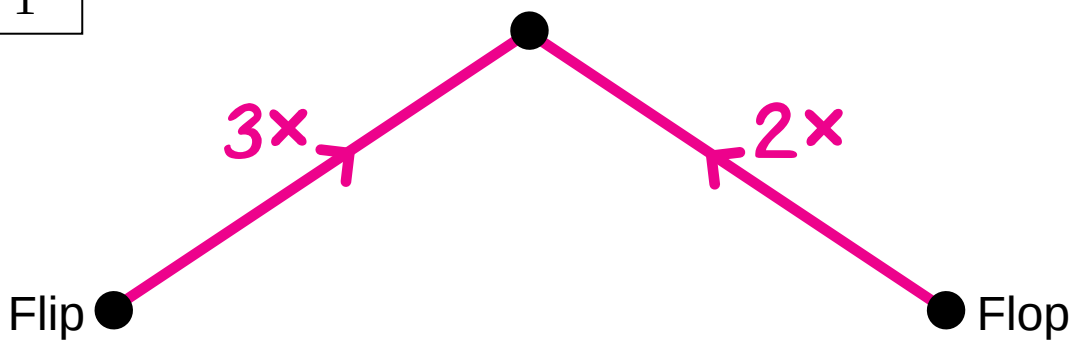


Name _____

N4 **

Flip and Flop are secret numbers.

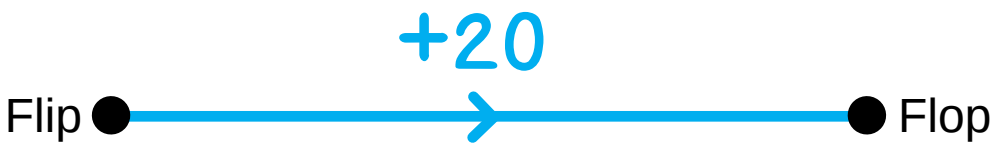
Clue 1



Fill in this chart with pairs of numbers that Flip and Flop could be.

Flip				10			40				200	
Flop					30			120				900

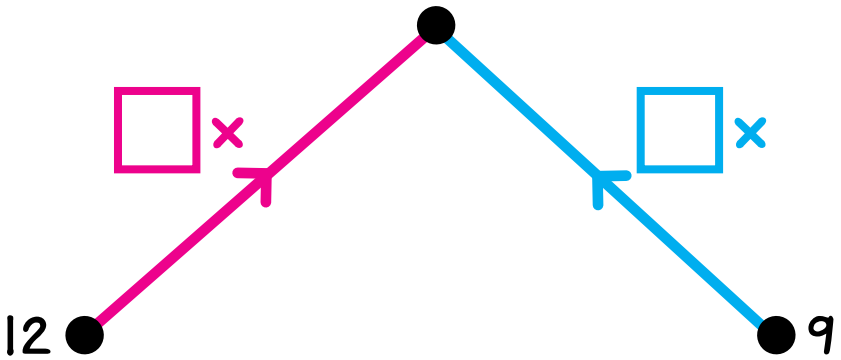
Clue 2



Who is Flip? _____ Who is Flop? _____

Name _____

N4 ***



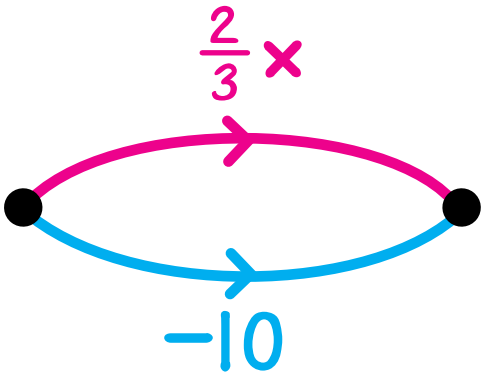
Find some ways to fill in the boxes for the arrows. Many solutions are possible. Use this table to show some of them.

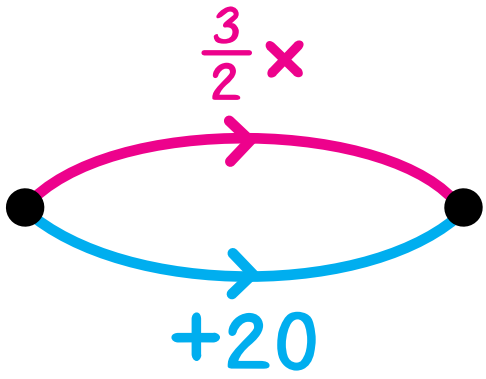
→										
→										

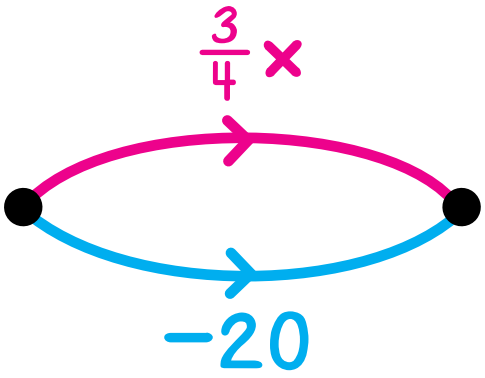
Name _____

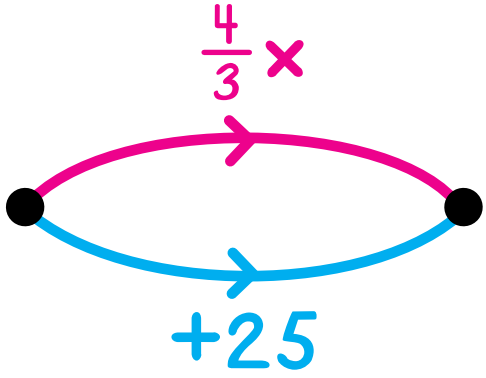
N4 ****

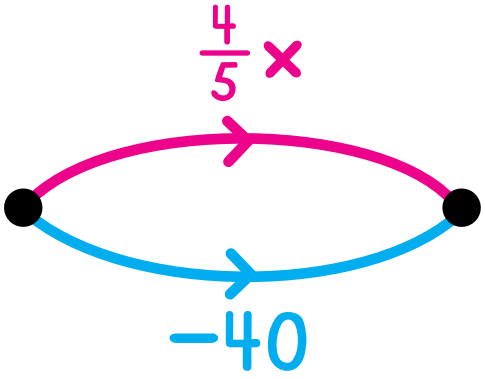
Label the dots.

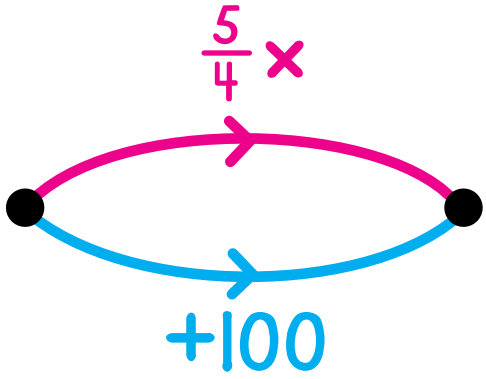








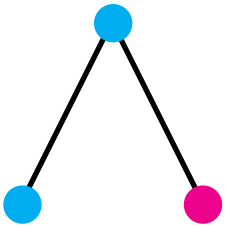




Name _____

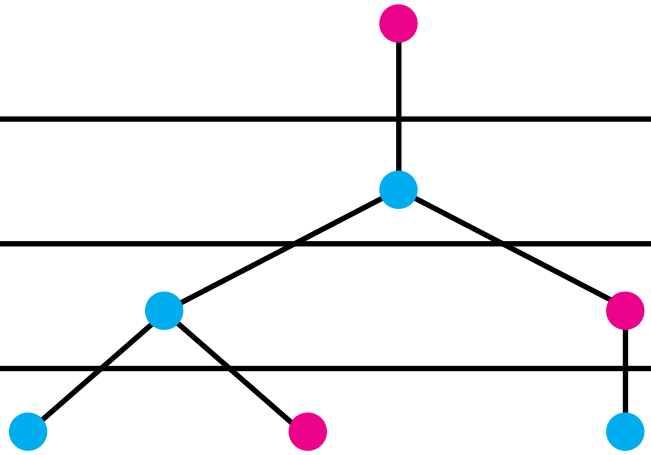
N5

Female bee (2 parents)



Male bee (1 parent)

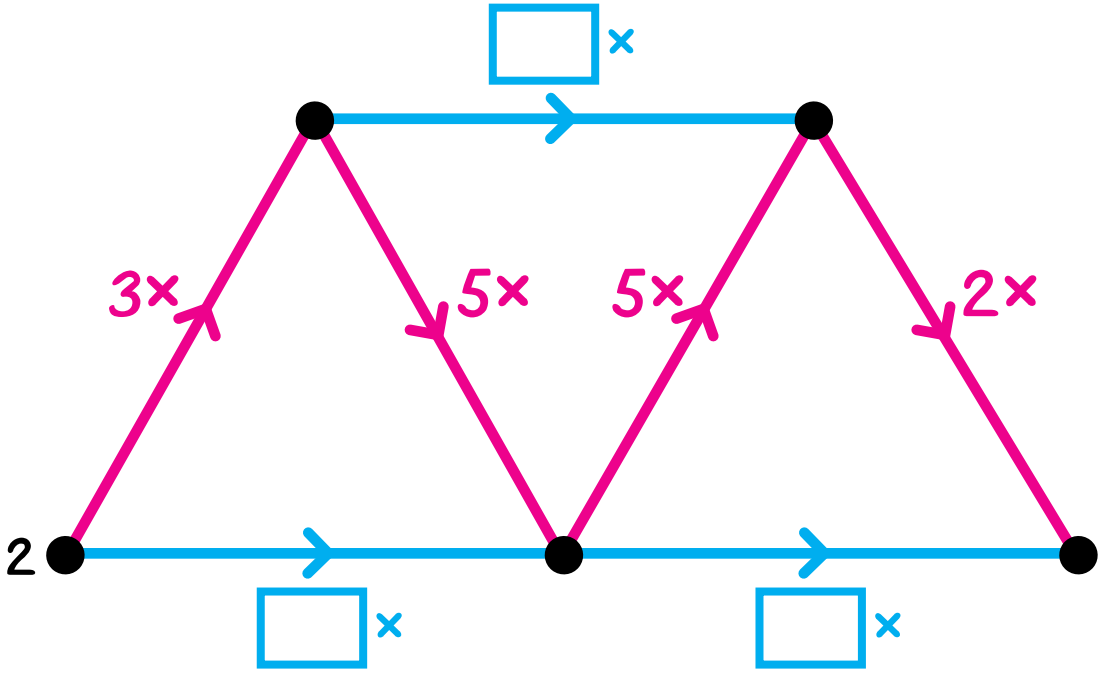
Complete the family tree to find the number of ancestors in each generation. Three generations are done for you.

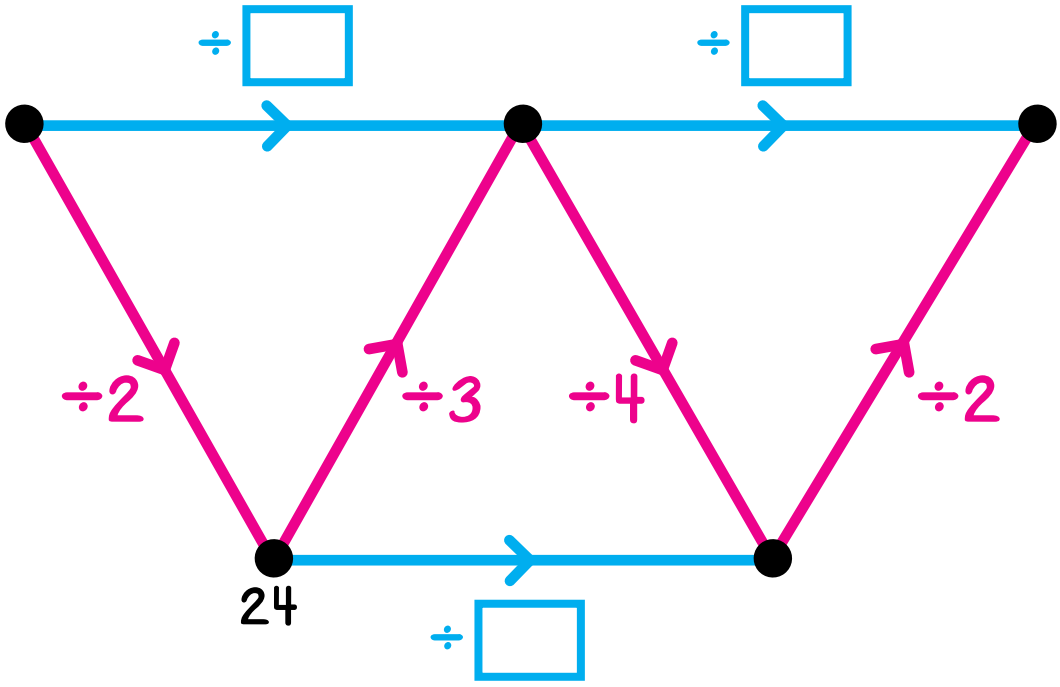
Generation	Male bee	Number of ancesters
1st		1
2nd		2
3rd		3
4th		
5th		
6th		
7th		

Name _____

N6 *

Label the dots and fill in the boxes for the blue arrows.

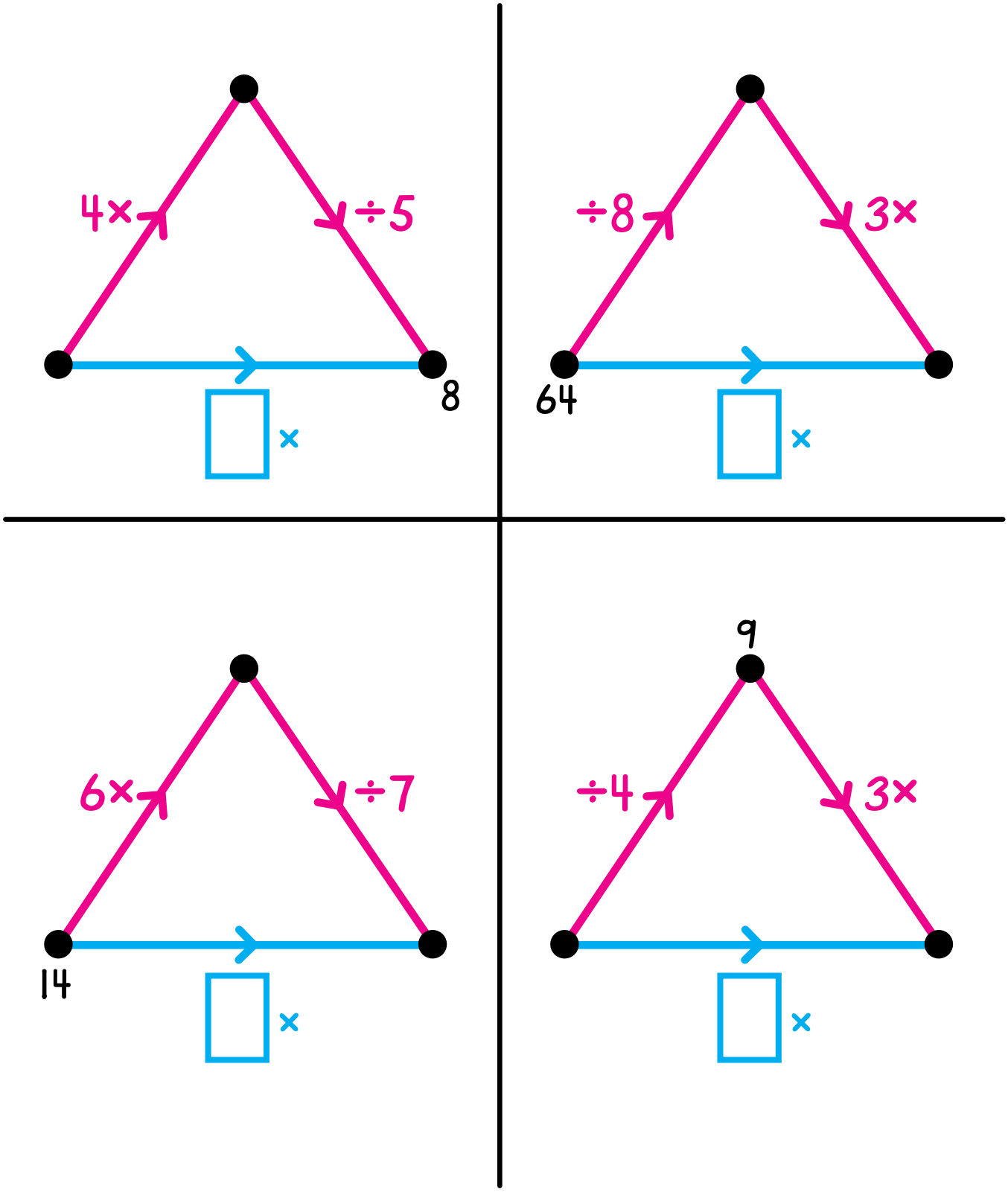




Name _____

N6 **

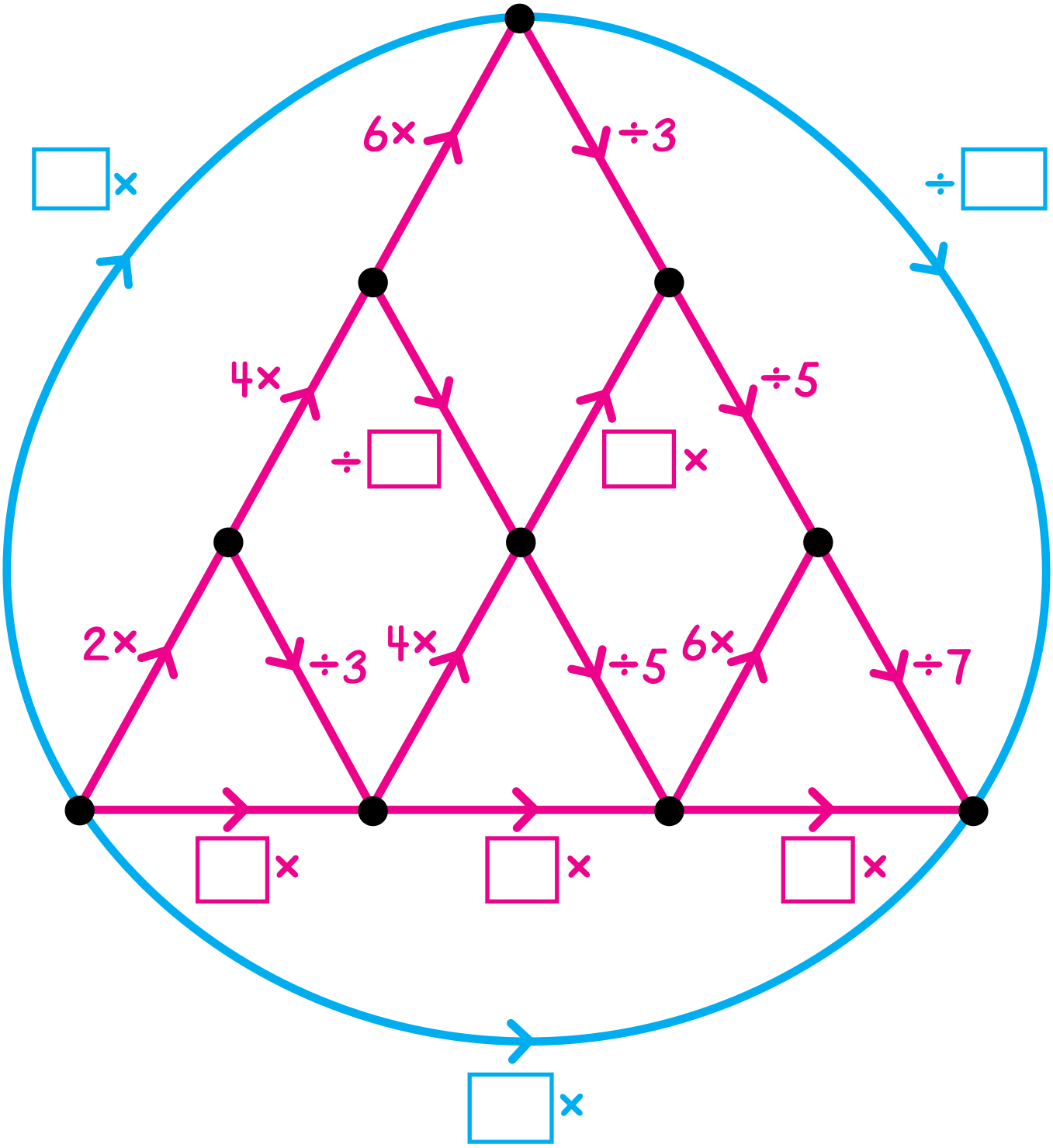
Label the dots and fill in the boxes for the blue arrows.



Name _____

N6 ***

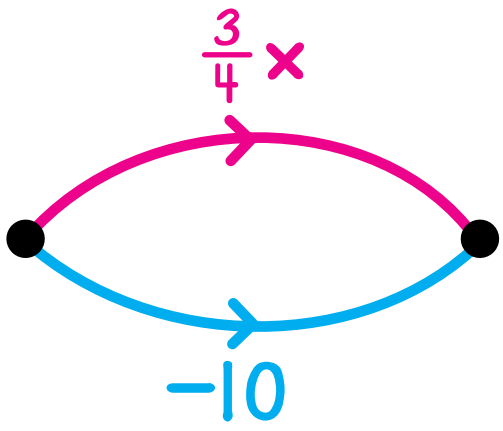
Fill in the boxes for the arrows.

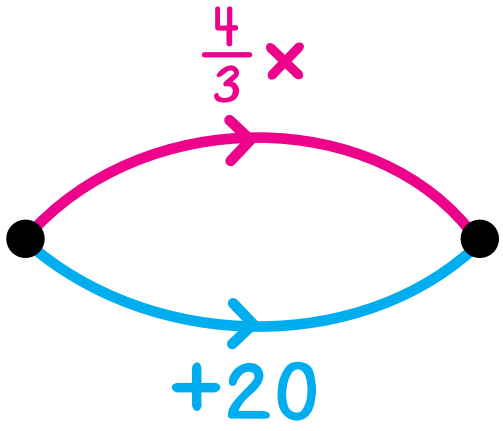


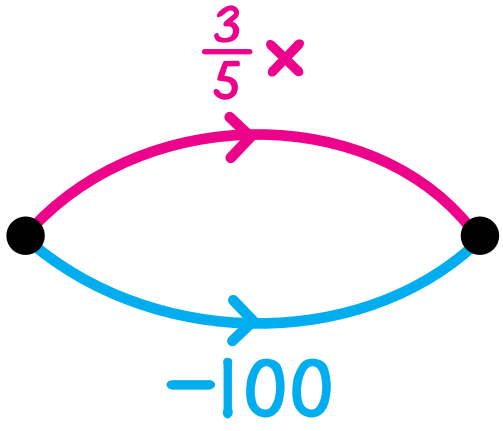
Name _____

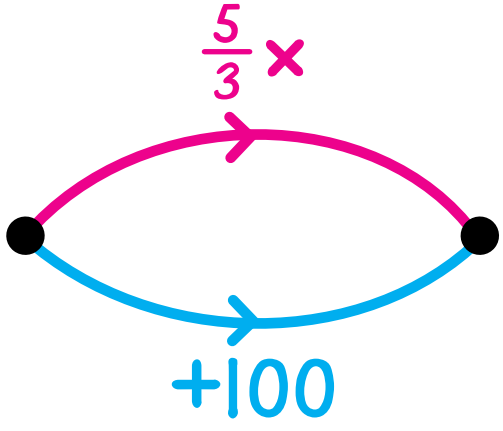
N6 ****

Label the dots.









Name _____

N7 *

Add.

$$\begin{array}{r} 567 \\ 33\,285 \\ +\,7\,848 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 7\,049 \\ -4\,856 \\ \hline \end{array}$$

Complete each problem. Put a single digit in each box to make the calculations correct.

$$\begin{array}{r} \square\,5\,6\,\square \\ +\,2\,\square\,8\,7 \\ \hline 7\,0\,\square\,4 \end{array}$$

$$\begin{array}{r} 7\,\square\,8\,1 \\ -\,9\,3\,\square \\ \hline \square\,2\,\square\,8 \end{array}$$

$$\begin{array}{r} 2\,\square\,3\,7 \\ 4\,4\,4\,\square \\ +\,1\,9\,\square\,5 \\ \hline \square\,1\,8\,5 \end{array}$$

$$\begin{array}{r} \square\,2\,\square\,1 \\ -\,2\,\square\,7\,\square \\ \hline 1\,6\,5\,5 \end{array}$$

Name _____

N7 **

Multiply.

$$\begin{array}{r} 6\,937 \\ \times\ 87 \\ \hline \end{array}$$

Complete each problem. Put a single digit in each box to make the calculations correct.

$$\begin{array}{r} \square\ 4\ \square \\ \times\ \square\ 6 \\ \hline 4\ \square\ 8\ 8 \\ \square\ 7\ \square\ 0\ 0 \\ \hline \square\square\square\square\square \end{array}$$

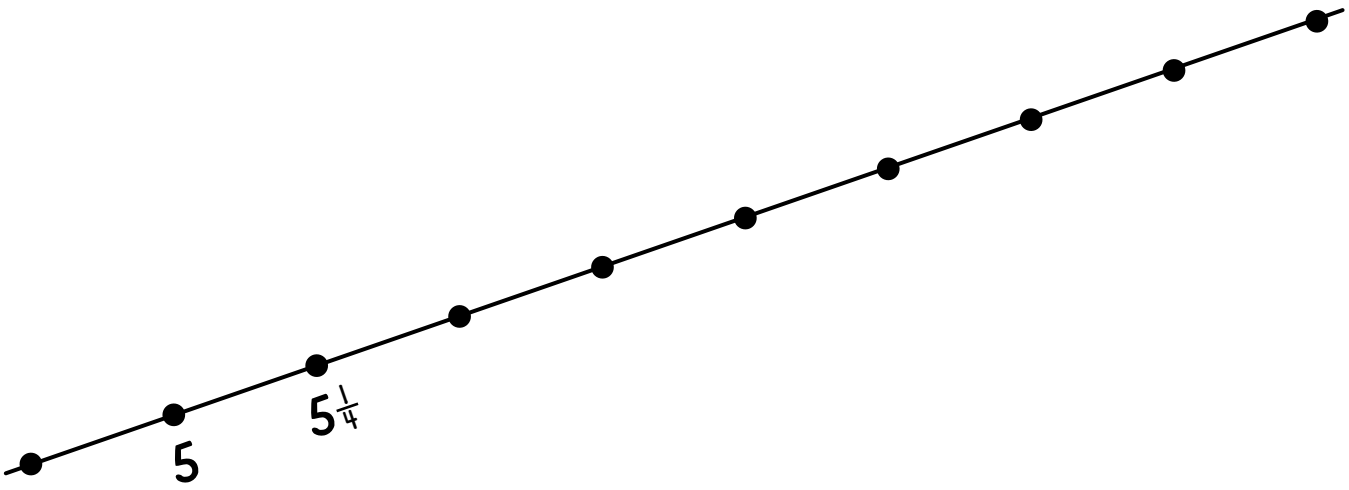
$$\begin{array}{r} 3\ \square\ 7\ \square \\ \times\ 9 \\ \hline \square\square\ 1\ \square\ 4 \end{array}$$

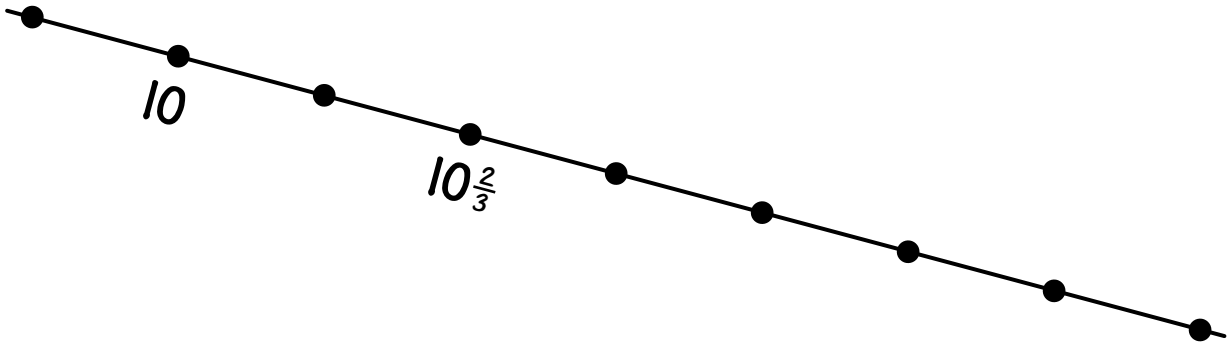
$$4\square \times \square = 3\square 3$$

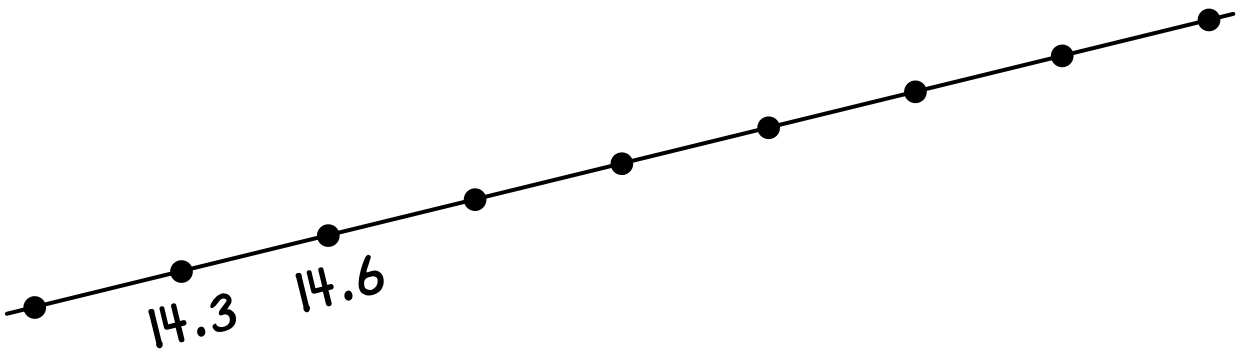
Name _____

N8 *

Label the dots on the number lines.





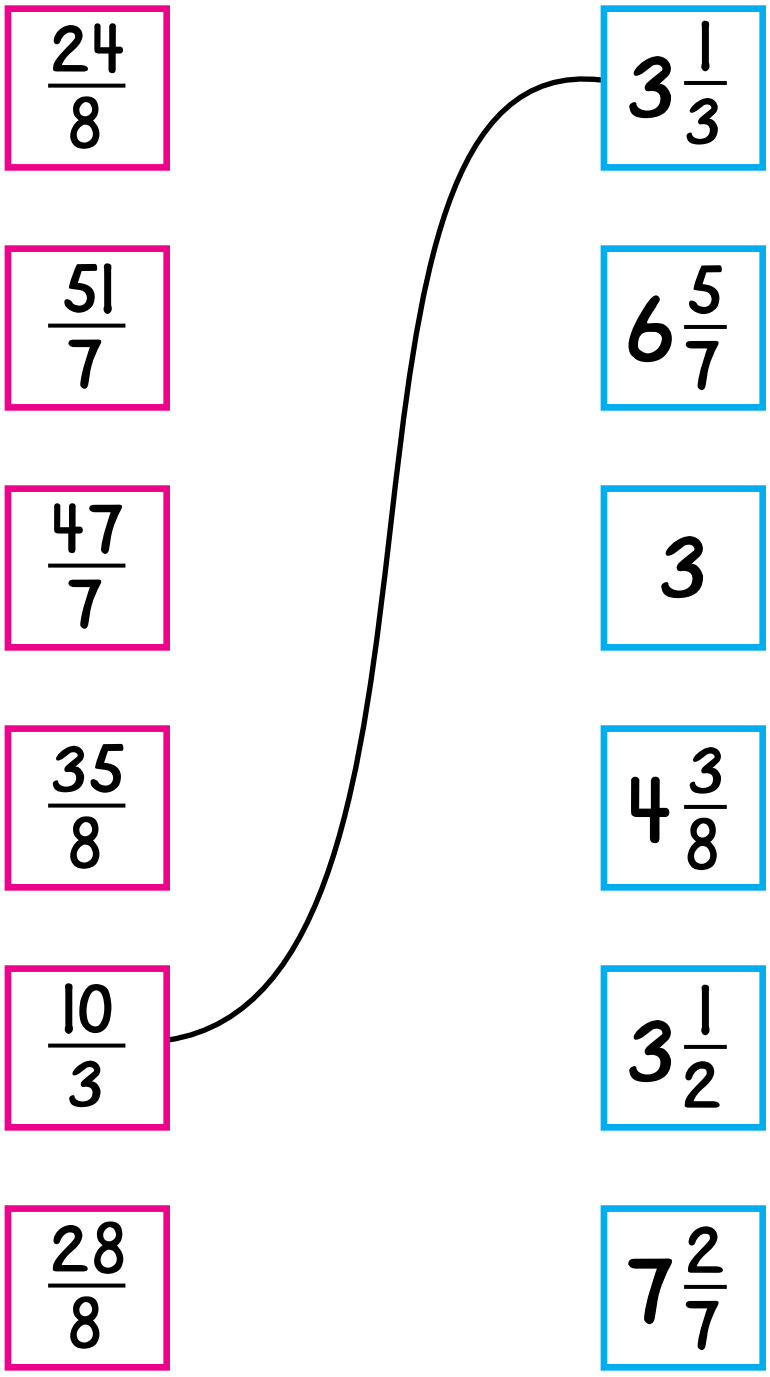


(Be careful!)

Name _____

N8 **

Pair each red tag with a blue tag. One is done for you.



Name _____

N8 ***

Write the solution to each of these division problems in mixed form, a whole number and a fraction. One is done for you.

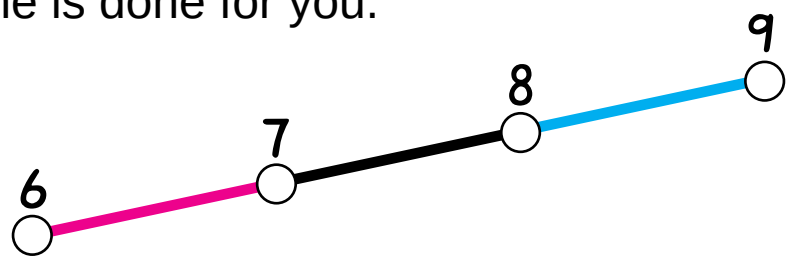
$8 \div 3 = 2\frac{2}{3}$ $50 \div 7 =$ _____

(Remember: $8 \div 3 = \frac{8}{3} = 2\frac{2}{3}$)

$10 \div 7 =$ _____ $60 \div 8 =$ _____

$38 \div 4 =$ _____ $49 \div 6 =$ _____

Circle each number with the color of the line segment in which it belongs. One is done for you.



$50 \div 7$	$43 \div 5$	$62 \div 9$
$55 \div 8$	$43 \div 6$	$62 \div 10$
$20 \div 3$	$35 \div 4$	$100 \div 12$

Name _____

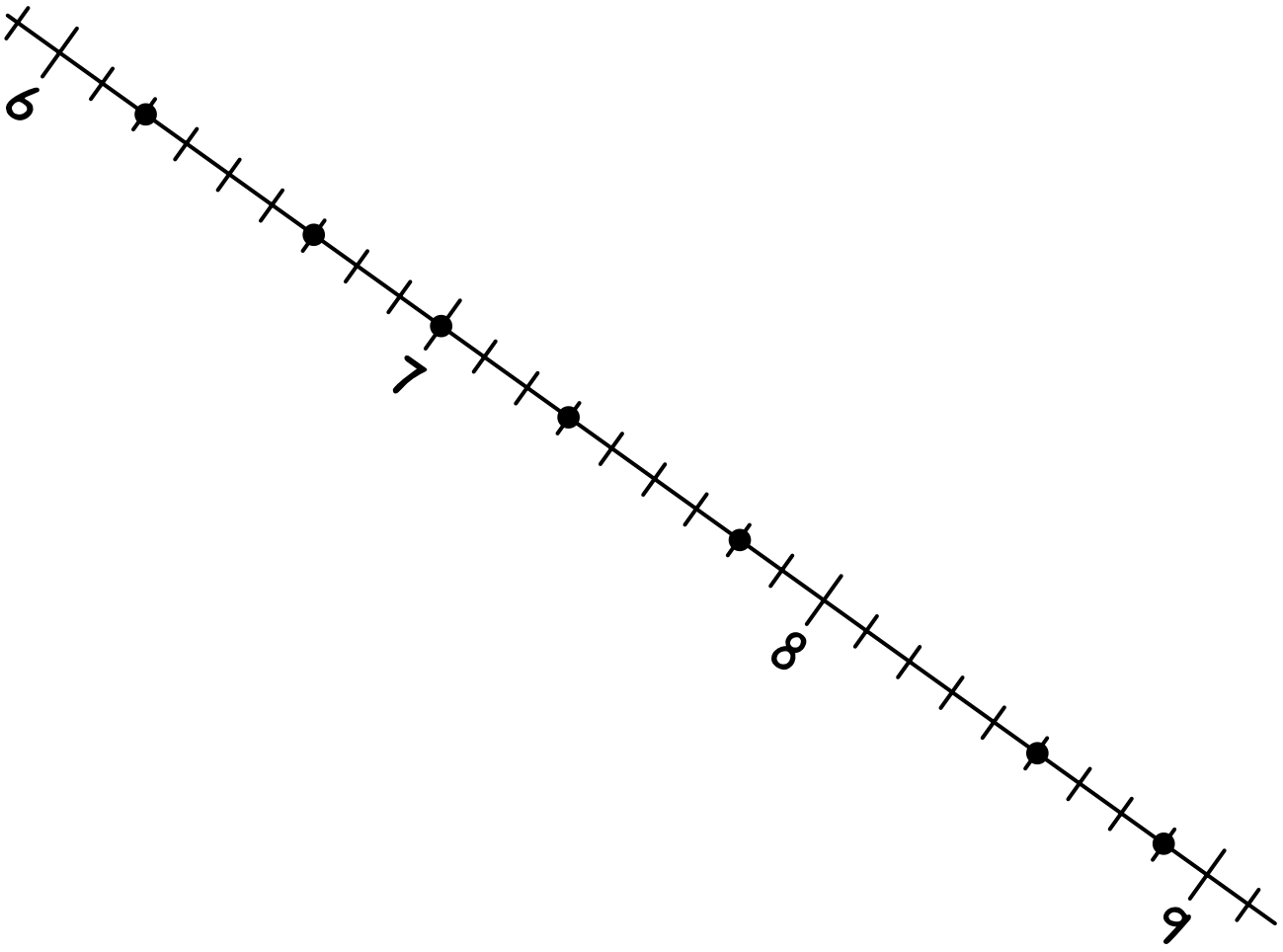
N8 ****

Label the dots with these numbers. Two labels may be for the same dot.

$8\frac{5}{9}$ $\frac{56}{9}$ $7\frac{1}{3}$

$63 \div 9$ $80 \div 9$ $6\frac{2}{3}$

$70 \div 9$ $\frac{66}{9}$ $77 \div 9$



Name _____

N9 *

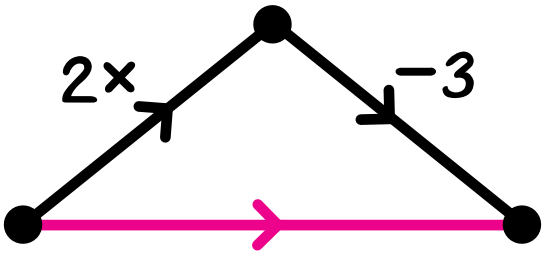
$$a * b = (3 \times a) - b$$

Fill in the boxes.

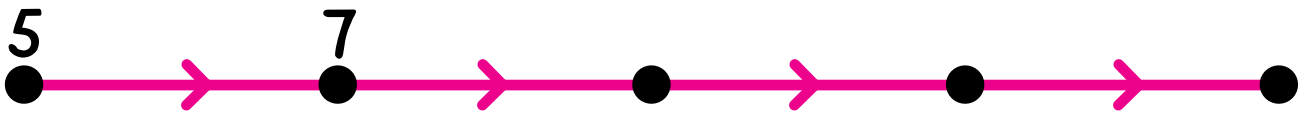
5 * 4 = 11	5 * ☐ = 12
4 * 5 = ☐	6 * ☐ = 14
10 * 4 = ☐	7 * ☐ = 16
4 * 10 = ☐	8 * ☐ = 18
7 * 6 = ☐	9 * ☐ = 20
6 * 7 = ☐	☐ * 5 = 7
9 * 9 = ☐	☐ * 8 = 10
15 * 5 = ☐	☐ * 10 = 14
5 * 15 = ☐	☐ * 12 = 18

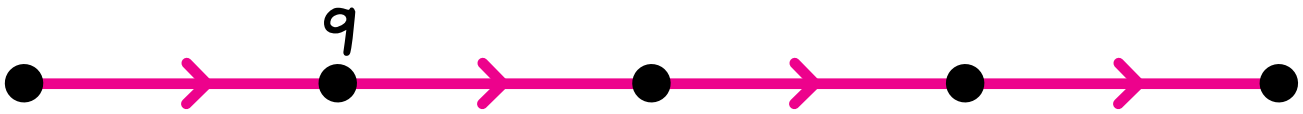
Name _____

N9 **



Label the dots.





Name _____

N9 ***

$$a * b = a + (b \div 3)$$

Fill in the boxes.

$12 * 15 = \square$

$60 * 27 = \square$

$27 * 60 = \square$

$0.6 * 1.5 = \square$

$3.4 * 3.6 = \square$

$\square * 24 = 15$

$\square * 42 = 20$

$\square * 72 = 30$

$2 * \square = 7$

$0 * \square = 7$

$1 * \square = 10$

$5 * \square = 20$

$8 * \square = 8$

$3 * \square = 0$

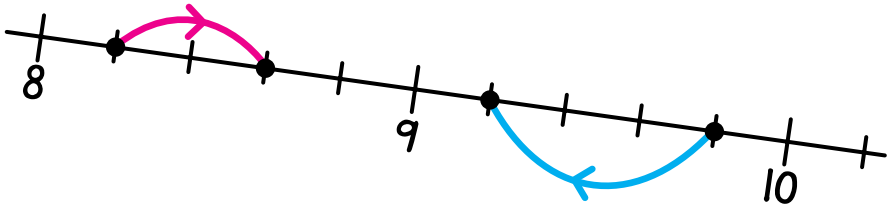
$\hat{3} * \square = 0$

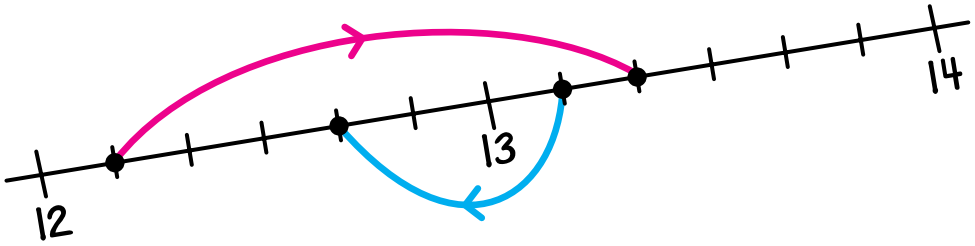
$\hat{12} * \square = \hat{2}$

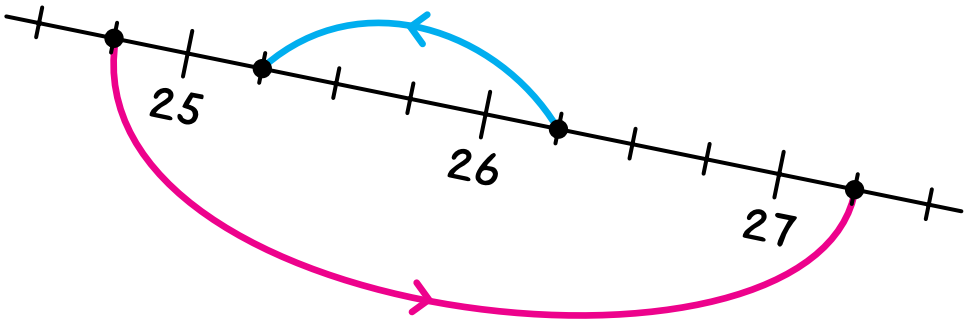
Name _____

N10 *

Label the starting dot and the ending dot of each arrow.
Label the arrows with + or − some number.



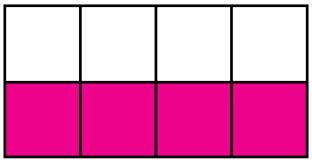




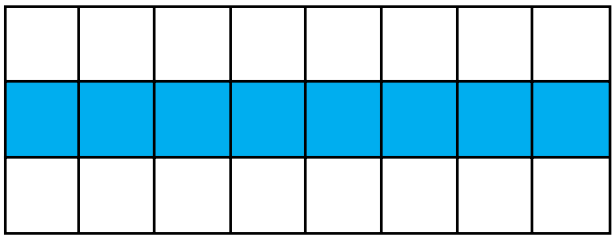
Name _____

N10 **

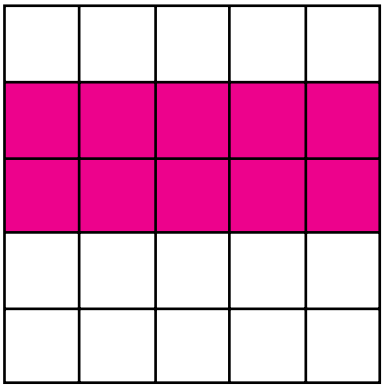
Fill in the boxes for equivalent fractions.



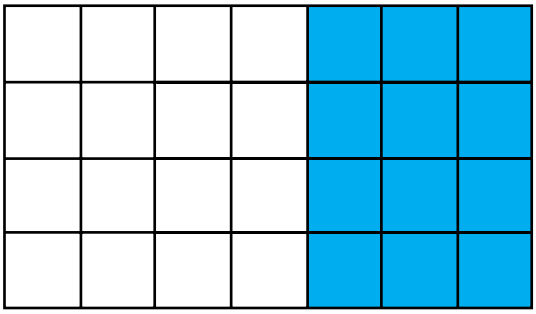
$\frac{1}{2} = \frac{\square}{8}$



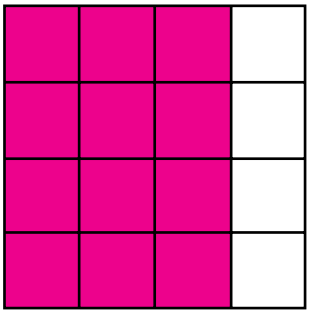
$\frac{1}{3} = \frac{\square}{24}$



$\frac{2}{5} = \frac{10}{\square}$



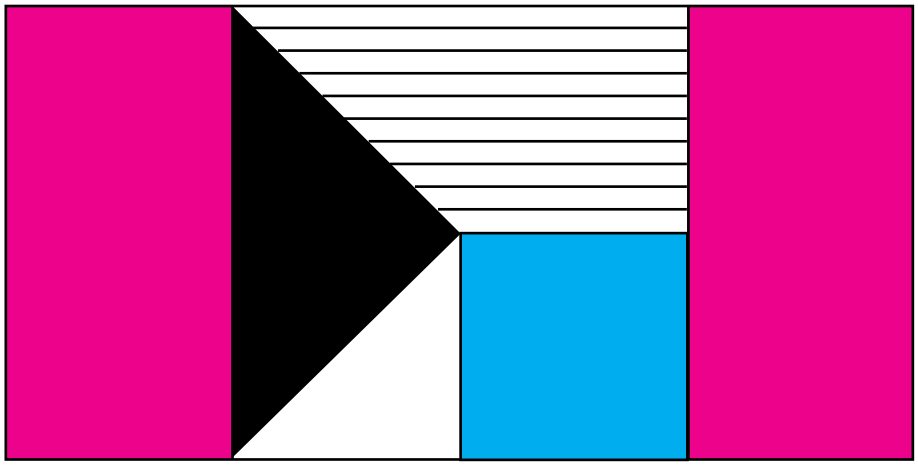
$\frac{3}{\square} = \frac{12}{28}$



$\frac{\square}{4} = \frac{12}{16}$

Name _____

N10 ***



1. What fraction of the rectangle is colored

   red? _____

   blue? _____

   white? _____

   black? _____

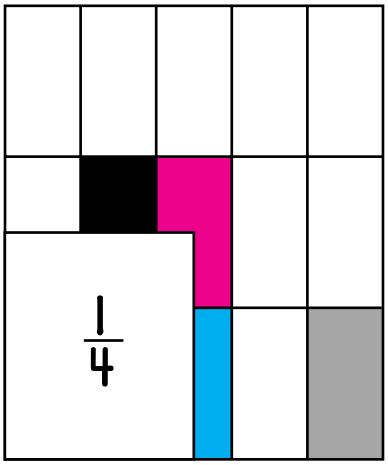
   striped? _____

2. What fraction of the rectangle is not red? _____
   What fraction of the rectangle is not blue? _____
   What fraction of the rectangle is not black? _____

3. What fraction of the rectangle is colored red or blue? _____
   What fraction of the rectangle is colored black or blue? _____

Name _____

N10 ****

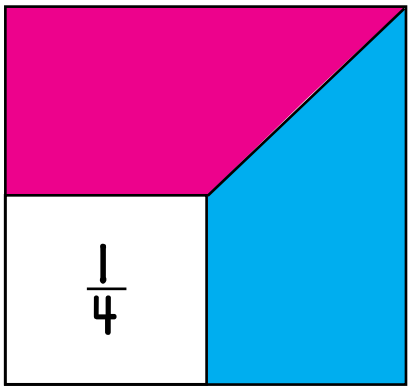


What fraction of the rectangle is colored gray? _____

blue? _____

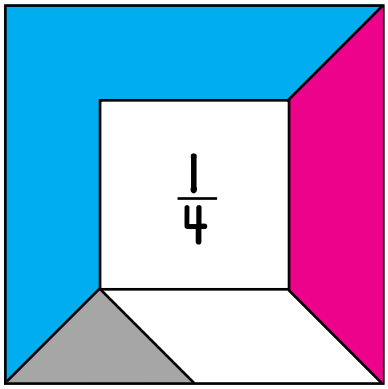
black? _____

red? _____



What fraction of the rectangle is colored red? _____

blue? _____



What fraction of the square is colored gray? _____

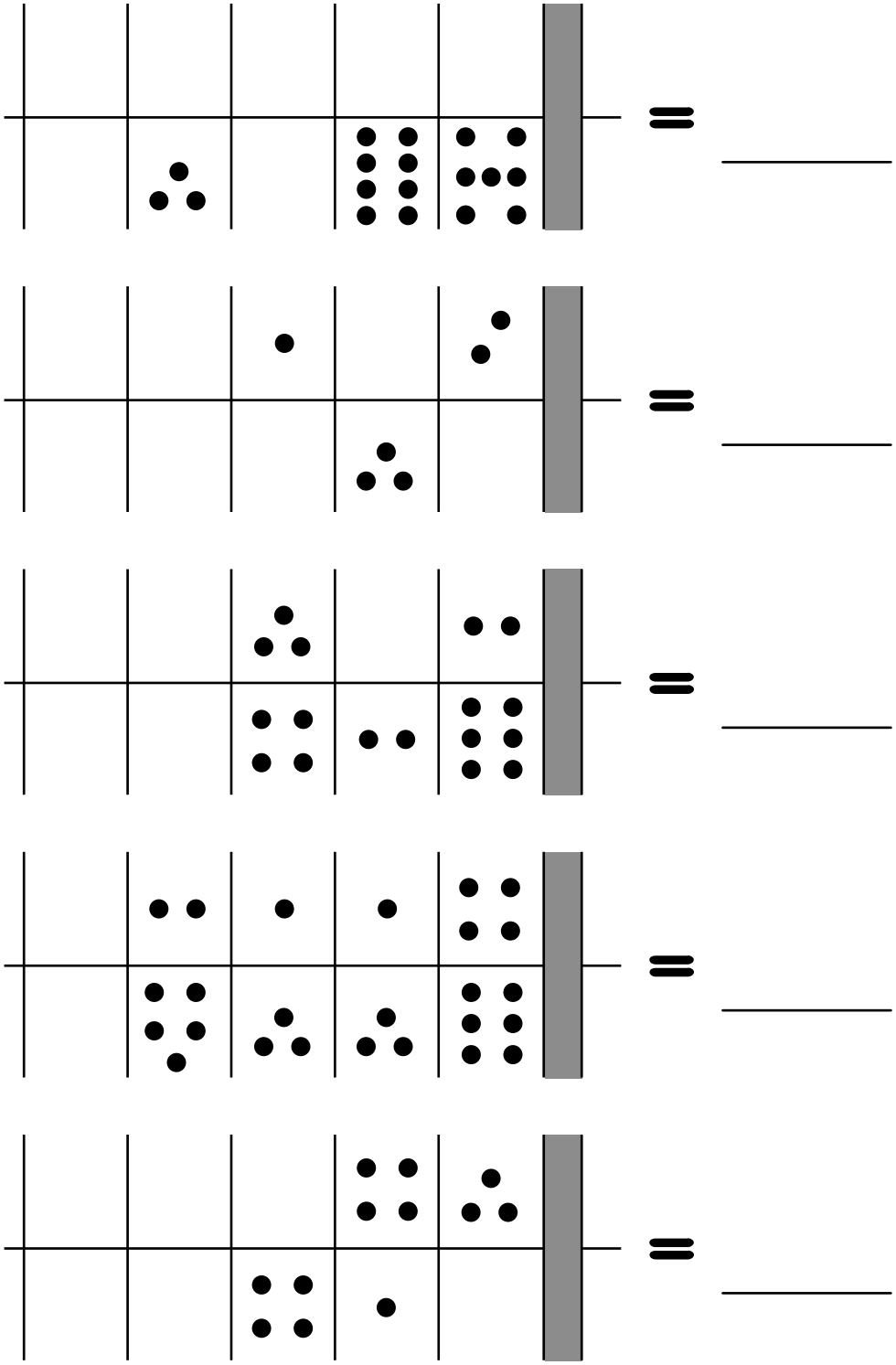
blue? _____

red? _____

Name _____

N12 *

What number is on Nabu's abacus? You may make trades if you wish.

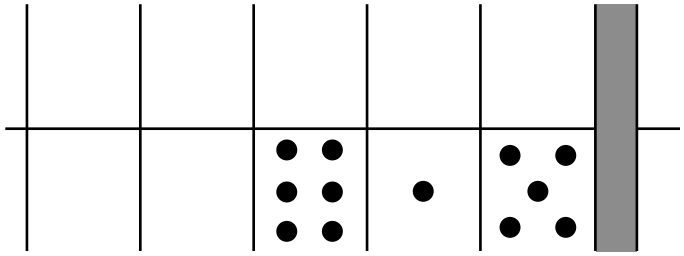


Name _____

N12 **

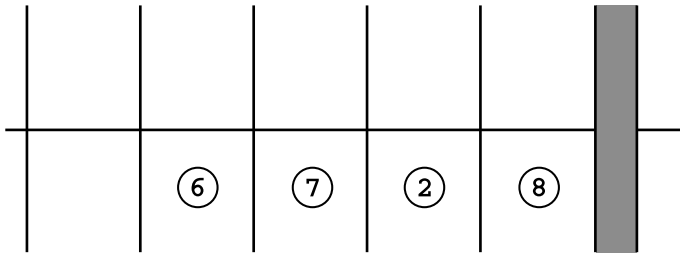
On each abacus, show the trades Nabu could make to determine the number of boxes he could fill.

Nabu must pack 615 pencils into boxes. Each box holds nine pencils.



Nabu could fill _____ boxes and have _____ pencils left over.

Nabu must pack 6 728 pencils into boxes. Each box holds nine pencils.



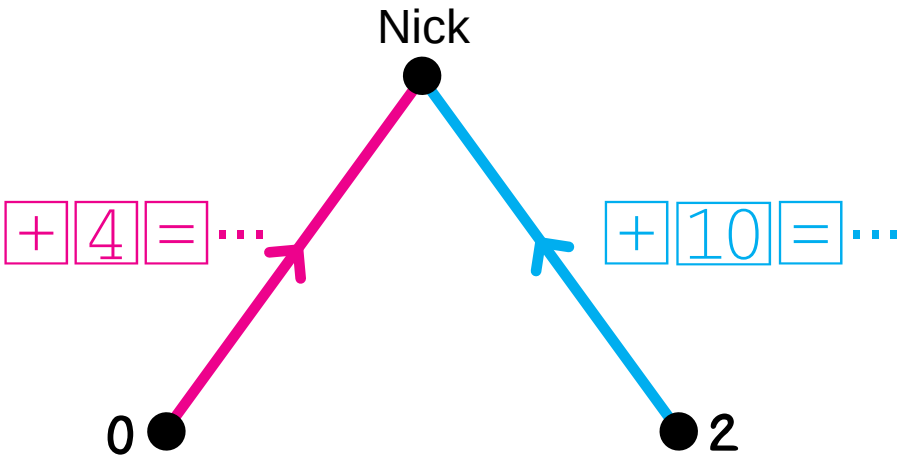
Nabu could fill _____ boxes and have _____ pencils left over.

Name _____

N14 *

Nick is a secret number.

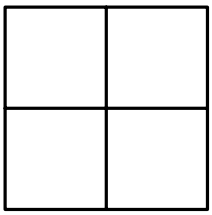
Clue 1



Nick could be ____, ____, ____, ____, ____, ____, and so on.

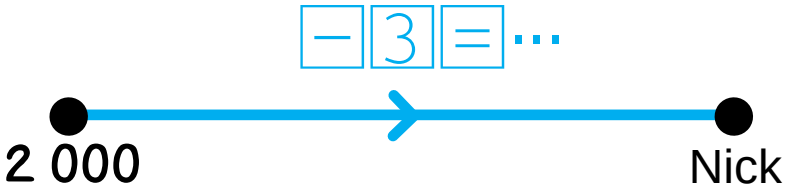
Clue 2

Nick can be put on the ones board of the Minicomputer using exactly one of these checkers:



Nick could be _____, _____, or _____.

Clue 3



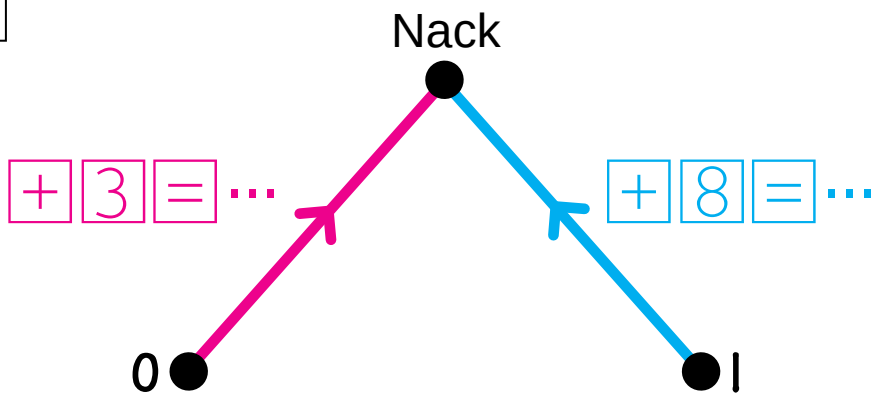
Who is Nick? _____

Name _____

N14 **

Nack is a secret number.

Clue 1



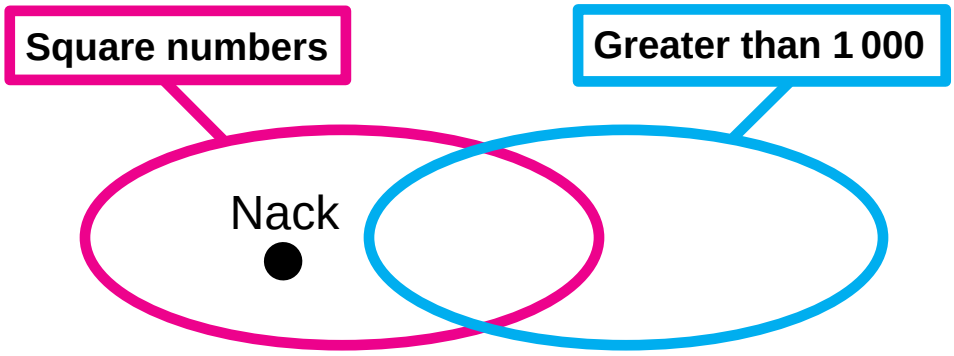
Nack could be ____, ____, ____, ____, ____, ____, ____, ____, ____, ____, ____, and so on.

Clue 2

Nack is a multiple of 5.

Nack could be ____, ____, ____, ____, ____, and so on.

Clue 3

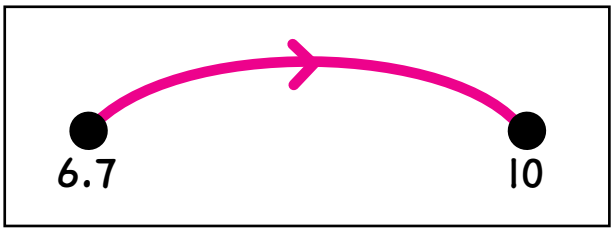


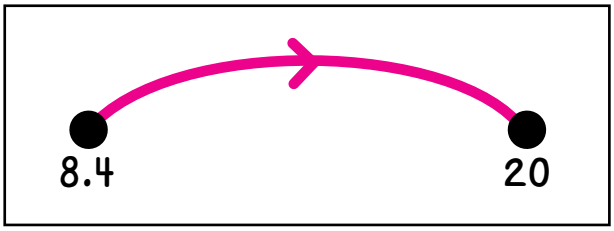
Who is Nack? _____

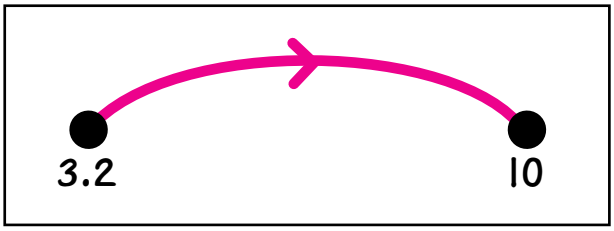
Name _____

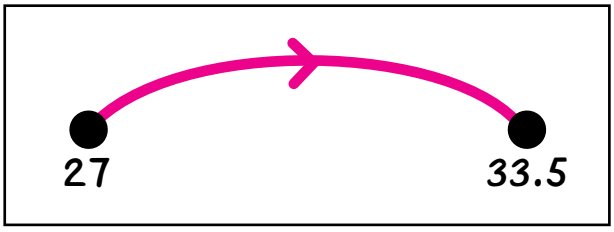
N15 *

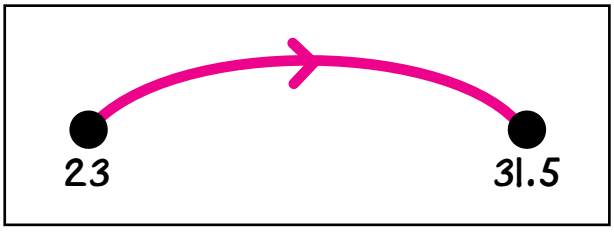
Pair each arrow with the correct label. One label will not be used.











+11.6

+8.5

+4.3

+3.3

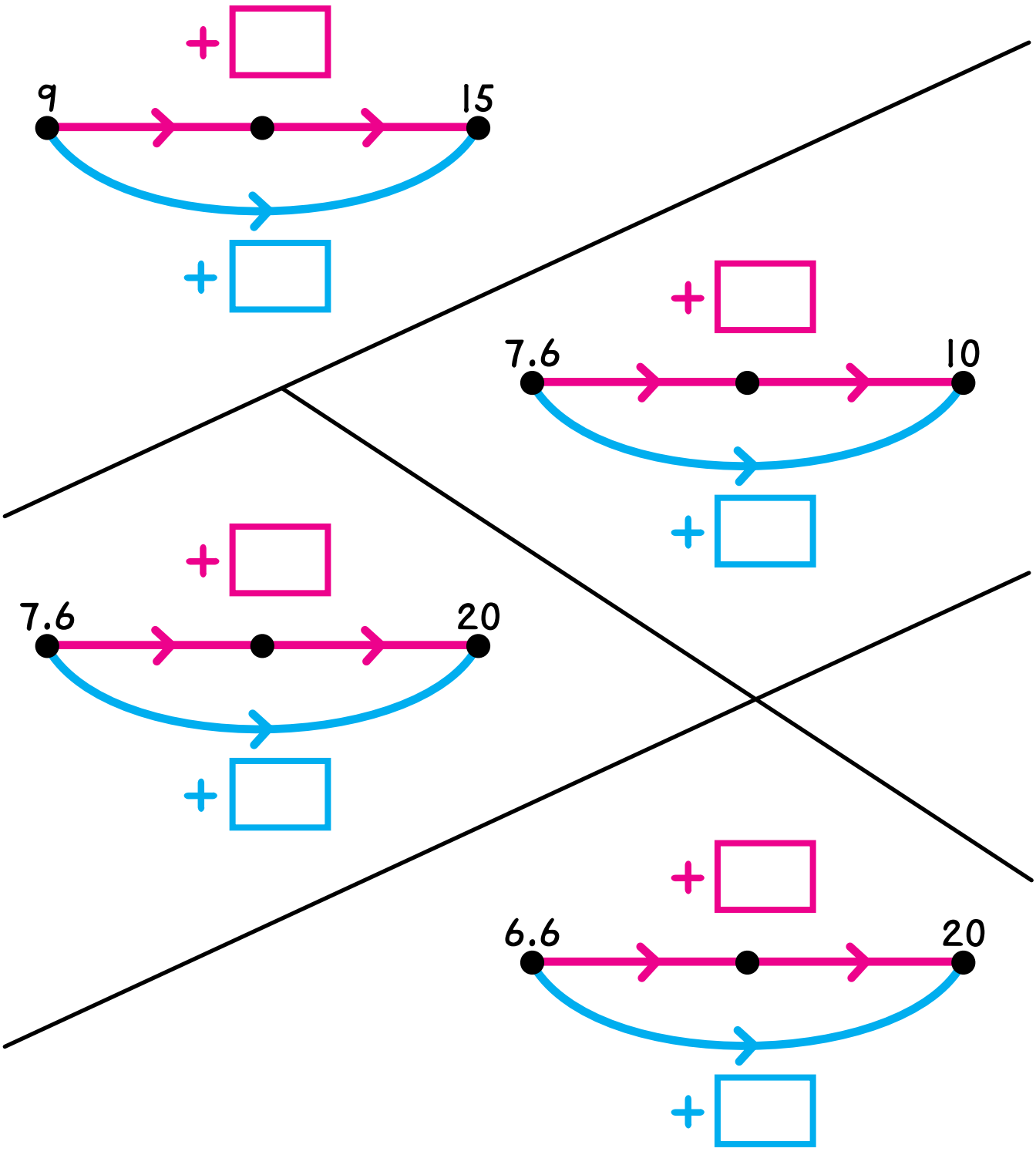
+6.5

+6.8

Name _____

N15 **

Label the arrows; then label the dots.



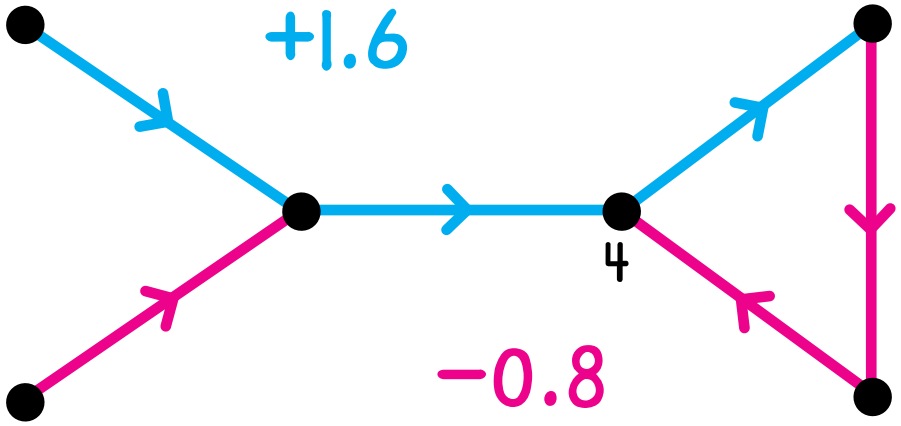
Name _____

N15 ***

Tod is a secret number.

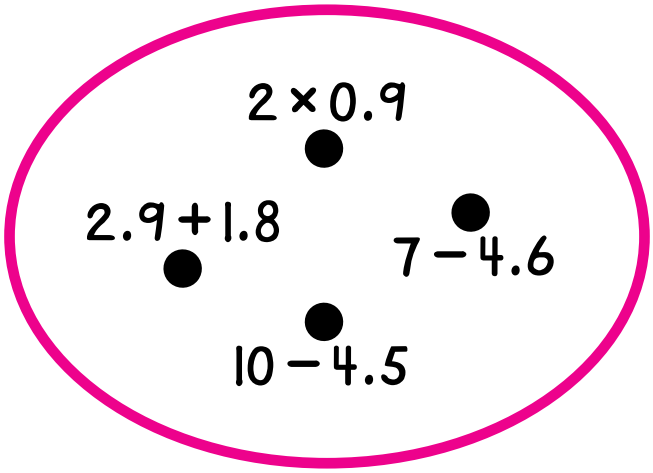
Clue 1

Tod is in this arrow picture.



Clue 2

Tod is in this string picture.

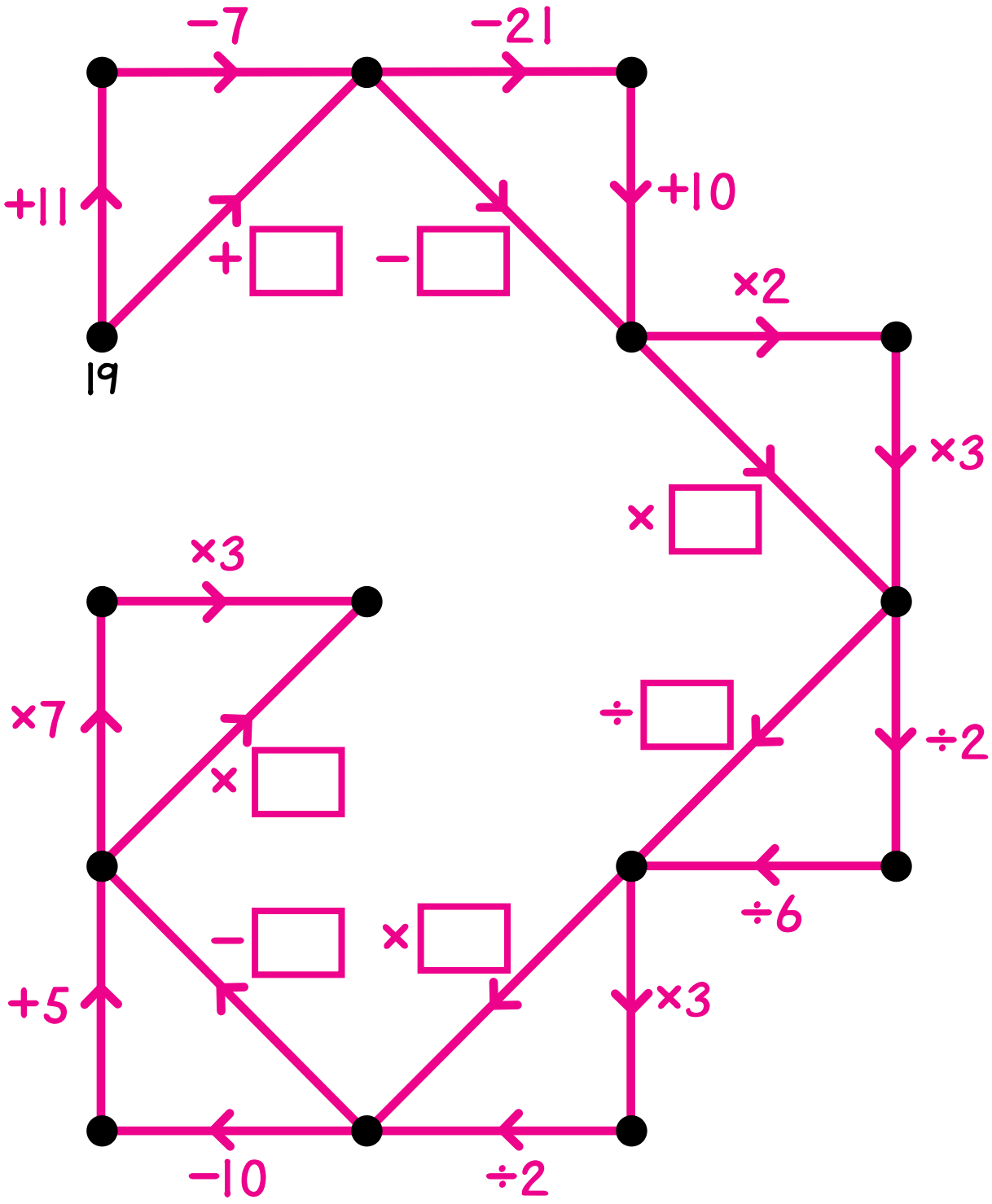


Who is Tod? _____

Name _____

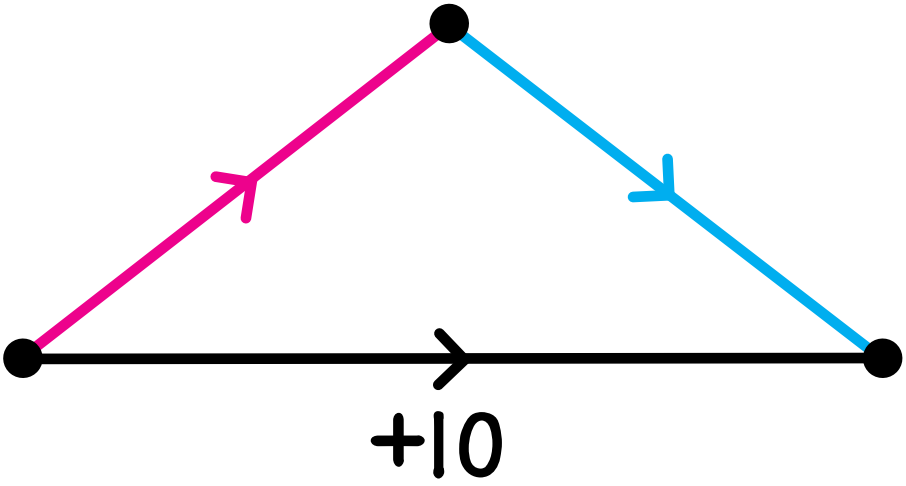
N16 *

Label the dots and fill in the boxes for the arrows.



Name _____

N16 **



Complete the charts.

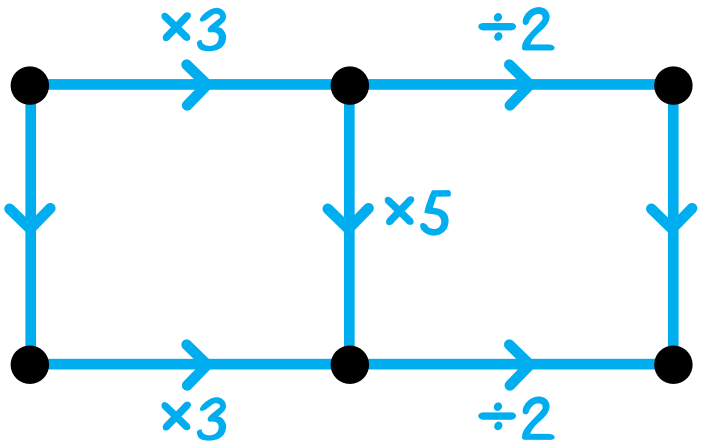
→	→
+3	+7
−3	
	−15
−100	
	+15

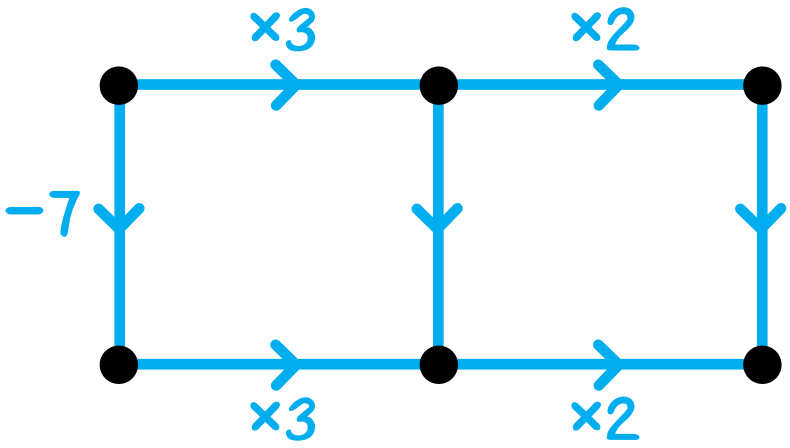
→	→
+3.6	
	+1.9
−2.5	
	+13.7
+2.65	
	−1.25

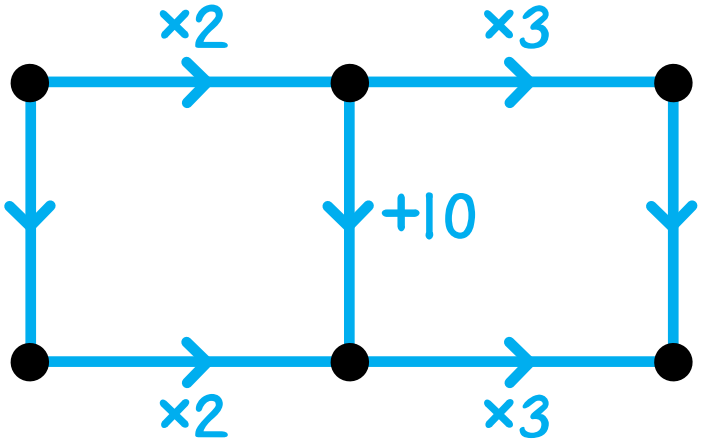
Name _____

N16 ***

Label the unlabeled arrows. Each arrow should be +, −, ×, or ÷ some whole number.



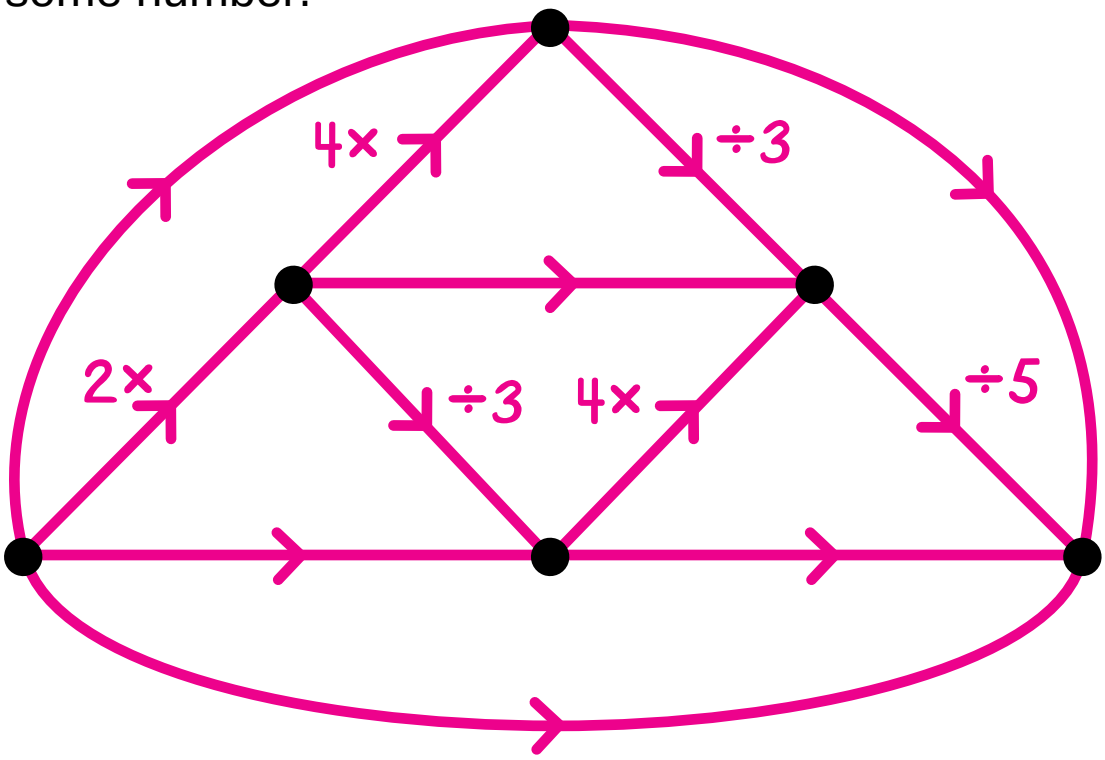


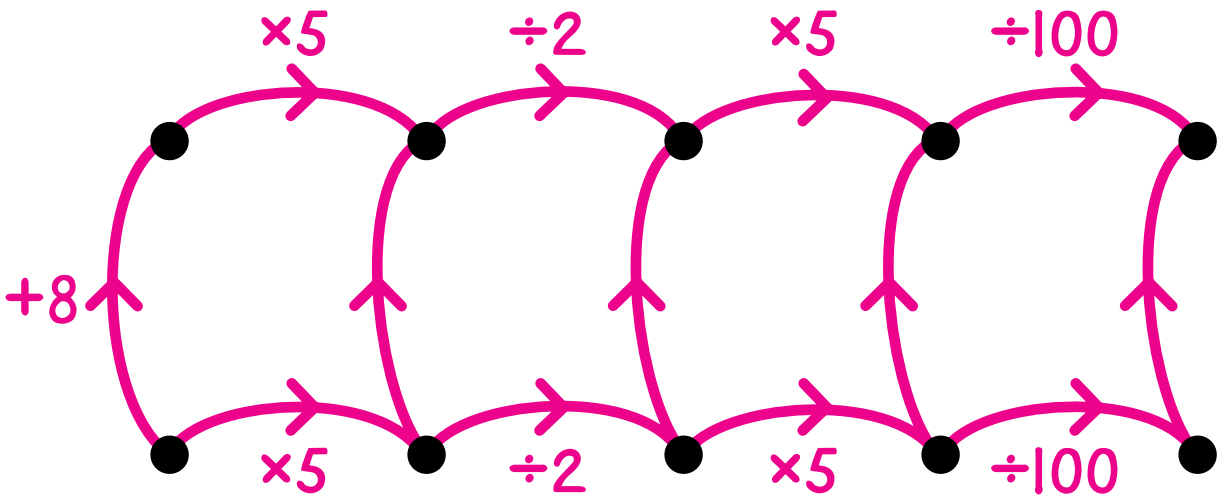


Name _____

N16 ****

Label the unlabeled arrows. Each arrow should be +, −, ×, or ÷ some number.

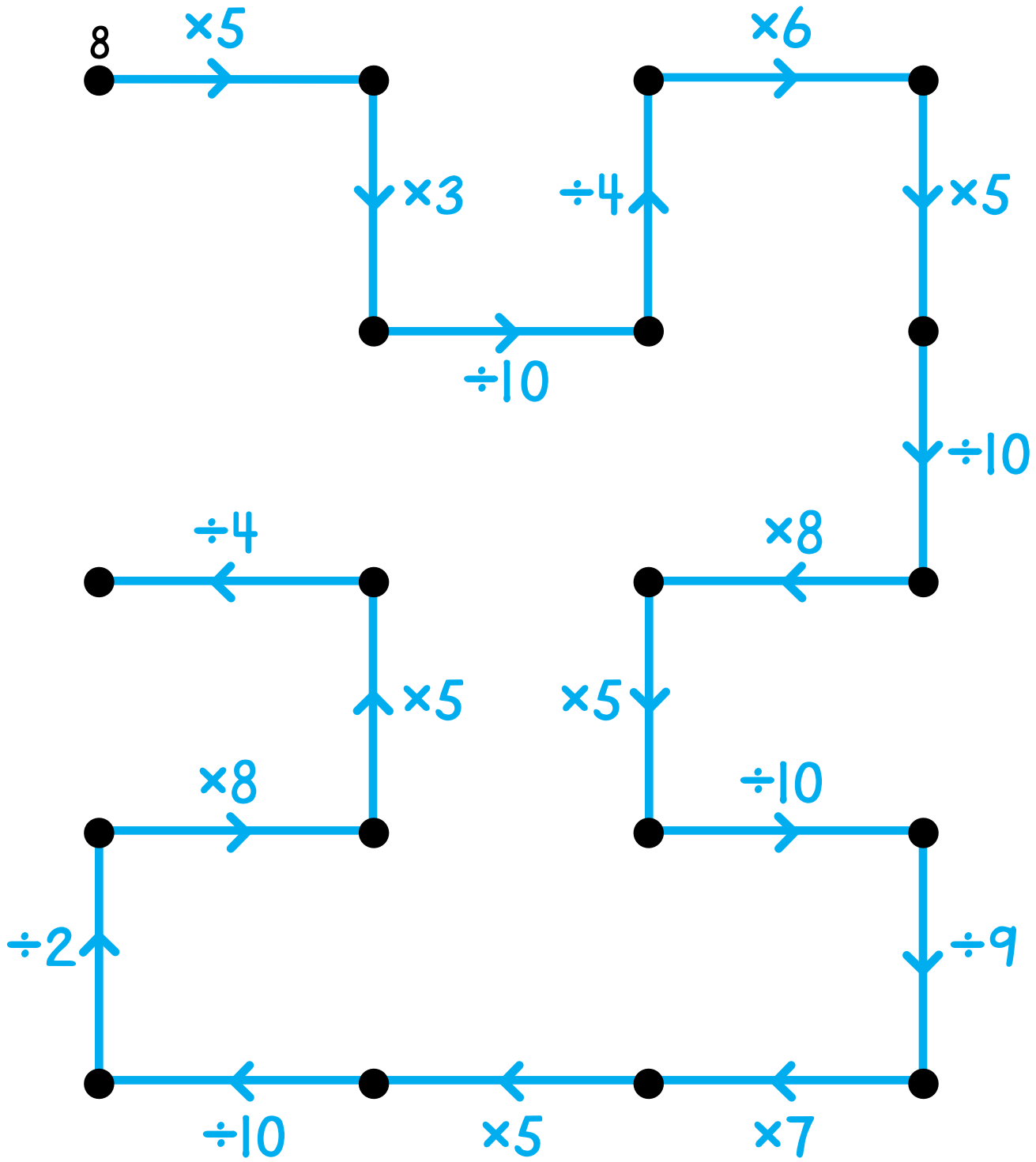




Name _____

N19 *

Label the dots.



Name _____

N19 **

Multiply.

$$\begin{array}{r} 68 \\ \times 42 \\ \hline \end{array} \qquad \begin{array}{r} 137 \\ \times 59 \\ \hline \end{array}$$

Complete each problem. Put a single digit in each box to make the calculations correct.

$$\begin{array}{r} \square\square 7 \\ \times \square 6 \\ \hline 1\,9\,6\,\square \\ \square\square\square 0 \\ \hline \square\square 0\,\square \end{array} \qquad \begin{array}{r} 9\,8 \\ \times 2\,\square \\ \hline 3\,\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

Name _____

N19 ***

$16 \times 24 = 384$

Complete.

$17 \times 24 = 384 + \square = _____$

$15 \times 24 = 384 - \square = _____$

$16 \times 25 = 384 + \square = _____$

$16 \times 23 = 384 - \square = _____$

$26 \times 24 = 384 + \square = _____$

$16 \times 34 = 384 + \square = _____$

$116 \times 24 = 384 + \square = _____$

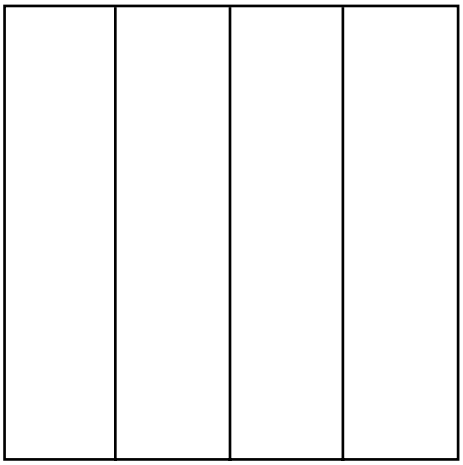
$16 \times 124 = 384 + \square = _____$

Name _____

N20 *

Shade one-fourth ($\frac{1}{4}$) of Sara's cake.

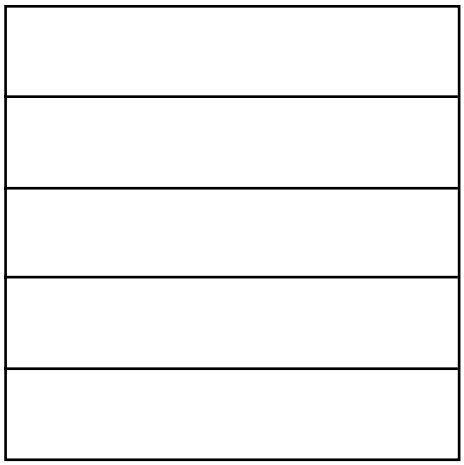
Sara



$\frac{1}{4}$

Shade two-fifths ($\frac{2}{5}$) of Amelia's cake.

Amelia



$\frac{2}{5}$

Make Sara's cuts on Amelia's cake.

Make Amelia's cuts on Sara's cake.

Use the pictures to solve this problem.

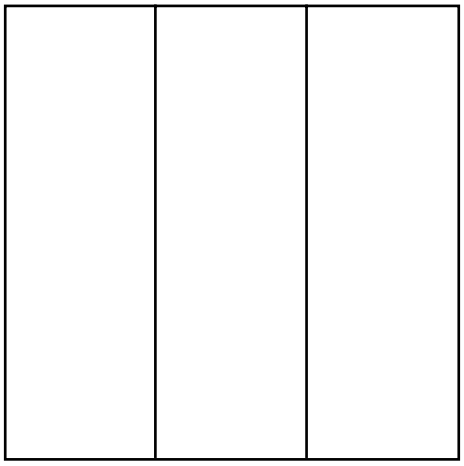
$\frac{1}{4} + \frac{2}{5} =$ _____

Name _____

N20 **

Shade two-thirds ($\frac{2}{3}$) of Sara's cake.

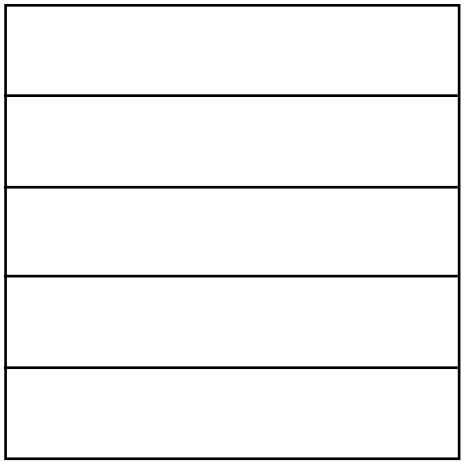
Sara



$\frac{2}{3}$

Shade two-fifths ($\frac{2}{5}$) of Amelia's cake.

Amelia



$\frac{2}{5}$

Make Sara's cuts on Amelia's cake.

Make Amelia's cuts on Sara's cake.

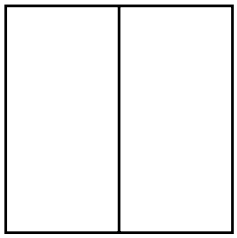
Use the pictures to solve this problem.

$\frac{2}{3} + \frac{2}{5} =$ _____

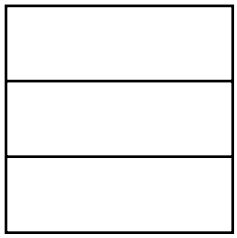
Name _____

N20 ***

Shade the fractional part of each square region.
Then use the pictures to complete the number stories.

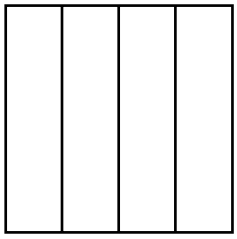


$\frac{1}{2}$

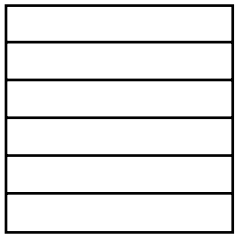


$\frac{2}{3}$

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

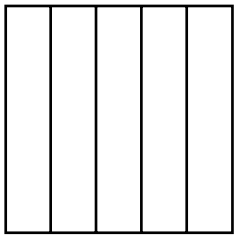


$\frac{1}{4}$

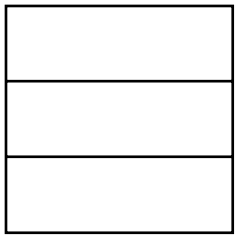


$\frac{1}{6}$

$\frac{1}{4} + \frac{1}{6} =$ _____

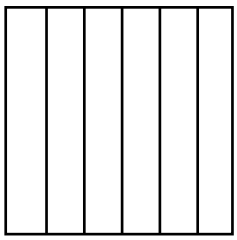


$\frac{2}{5}$

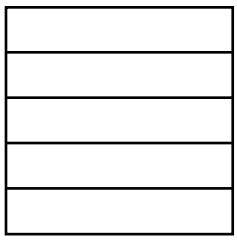


$\frac{1}{3}$

$\frac{2}{5} + \frac{1}{3} =$ _____



$\frac{5}{6}$



$\frac{3}{5}$

$\frac{5}{6} + \frac{3}{5} =$ _____

Name _____

N20 ****

Match each red box with a blue box.

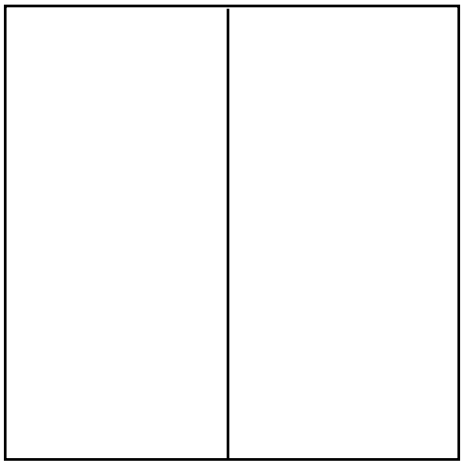
$\frac{1}{2} + 1\frac{1}{4}$	2
$\frac{2}{3} + \frac{4}{3}$	1
$\frac{2}{3} + \frac{1}{6}$	0.9
$\frac{5}{8} + \frac{3}{8}$	$1\frac{3}{4}$
$\frac{2}{5} + \frac{1}{2}$	$1\frac{1}{2}$
$\frac{3}{4} + \frac{3}{4}$	$\frac{5}{6}$

Name _____

N22 *

Shade one-half ($\frac{1}{2}$) of Sara's cake.

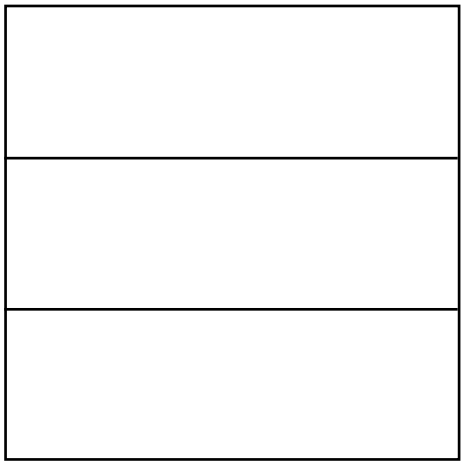
Sara



$\frac{1}{2}$

Shade two-thirds ($\frac{2}{3}$) of Amelia's cake.

Amelia



$\frac{2}{3}$

Make Amelia's cuts on Sara's cake.

Make Sara's cuts on Amelia's cake.

Use the pictures to solve these problems.

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

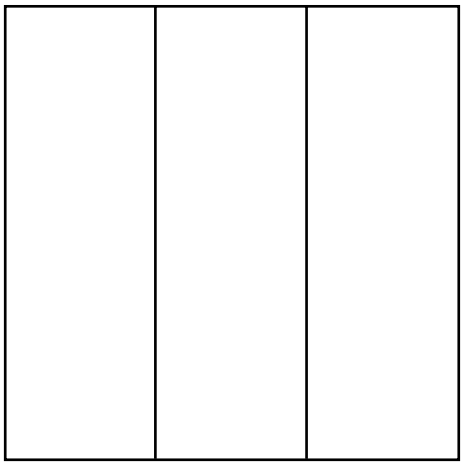
$\frac{1}{2} + \frac{1}{3} =$ _____

Name _____

N22 **

Shade one-third ($\frac{1}{3}$) of Sara's cake.

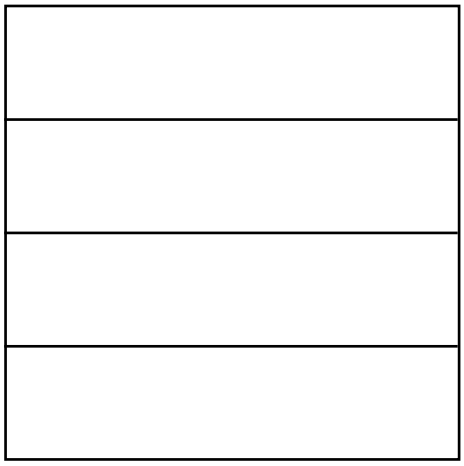
Sara



$\frac{1}{3}$

Shade three-fourths ($\frac{3}{4}$) of Amelia's cake.

Amelia



$\frac{3}{4}$

Make Amelia's cuts on Sara's cake.

Make Sara's cuts on Amelia's cake.

Use the pictures to solve these problems.

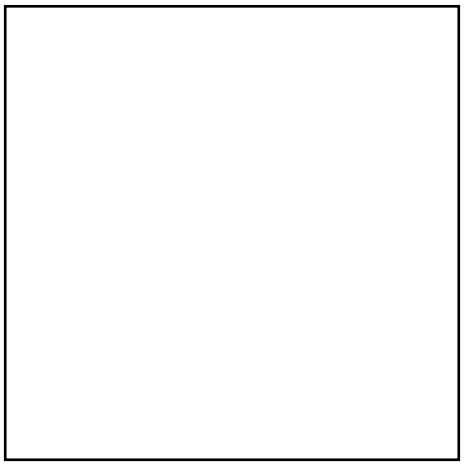
$\frac{1}{3} + \frac{3}{4} =$ _____

$\frac{2}{3} + \frac{1}{4} =$ _____

Name _____

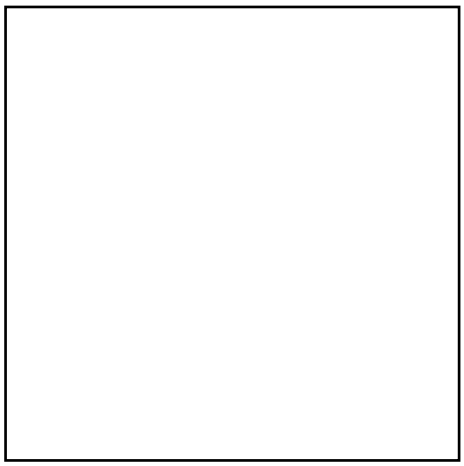
N22 ***

Divide this square region into four columns. Shade one of them.



$\frac{1}{4}$

Divide this square region into six rows. Shade five of them.



$\frac{5}{6}$

Use the pictures to solve these problems.

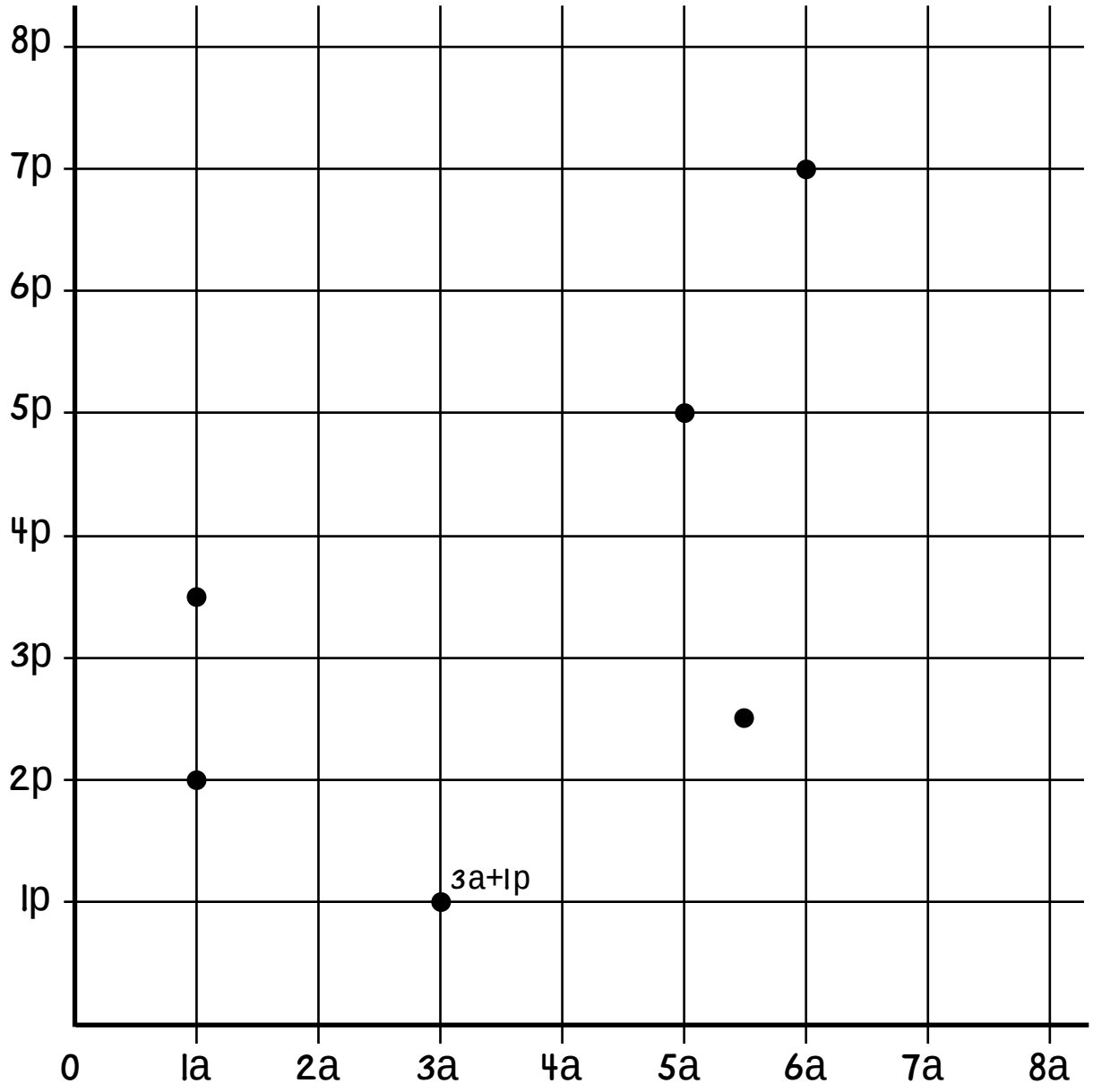
$\frac{1}{4} + \frac{5}{6} =$ _____

$\frac{3}{4} + \frac{1}{6} =$ _____

Name _____

N23(a)

Label the dots on the grid. One is done for you.



Draw and label dots for these purchases.

5a + 1p	2a + 3p	2a + 1.5p
4a + 7p	0a + 5p	3.5a + 4.5p

Name _____

N23(b)

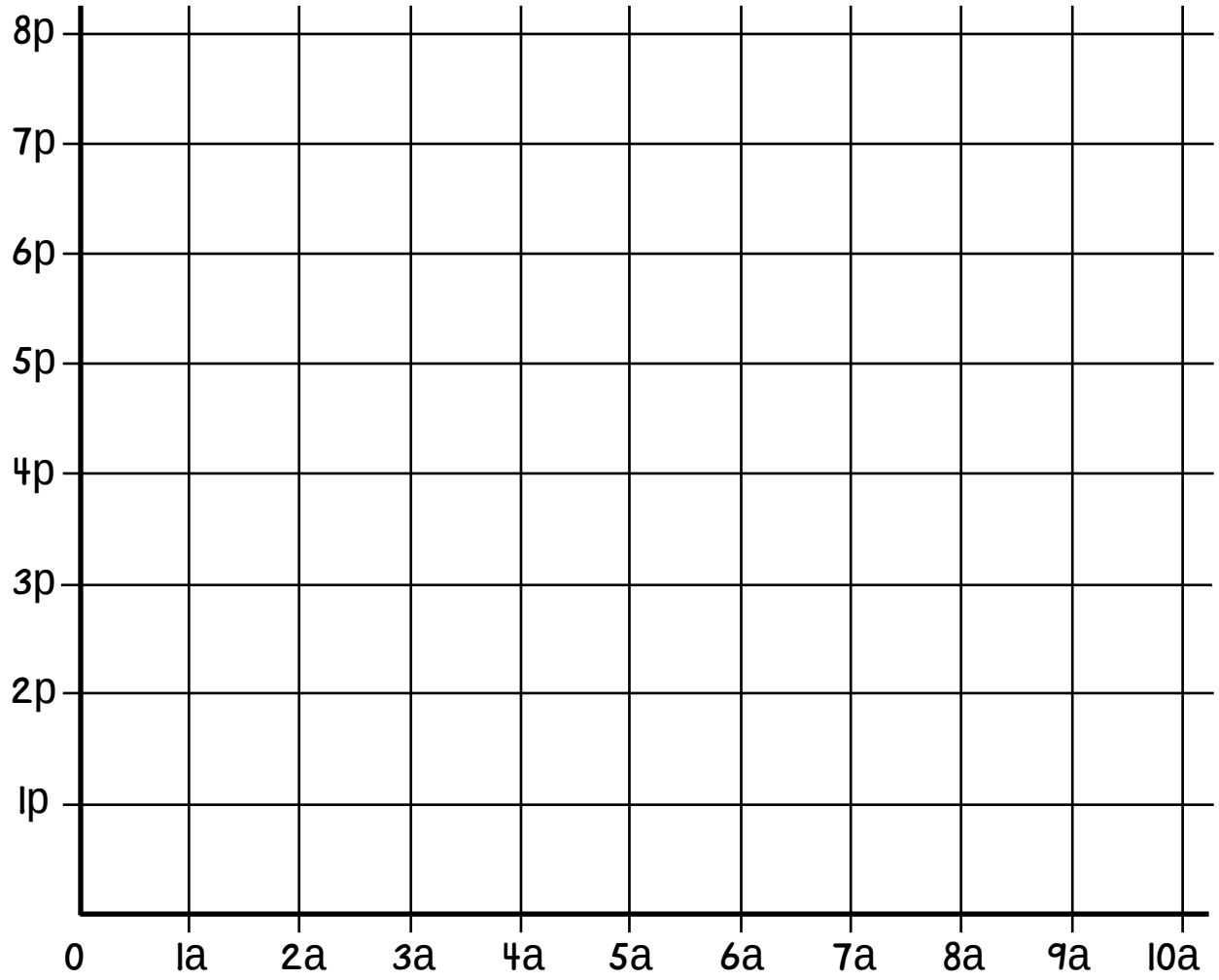
p (1a) = 40¢ p (1p) = 80¢

List $4.00 purchases.

_____ _____ _____ _____

_____ _____ _____ _____

Draw a dot on the grid for each $4.00 purchase you have found.



What do you notice about the dots? _____

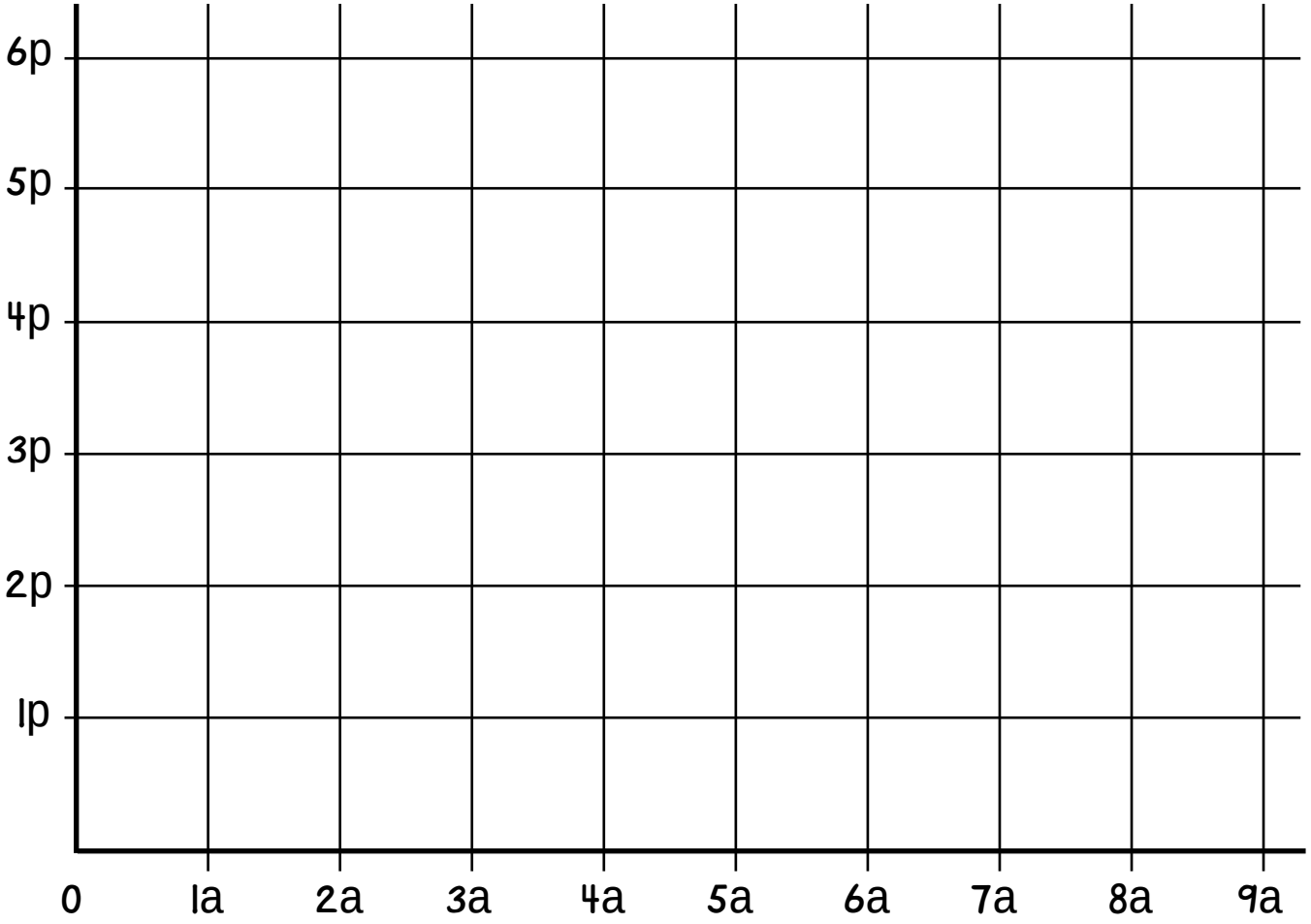
_____

Name _____

N24(a)

Draw and label the dots on the grid for these purchases.

8a + 3p 2a + 4p 5a + 0p 2.5a + 3p 8.25a + 5.5p

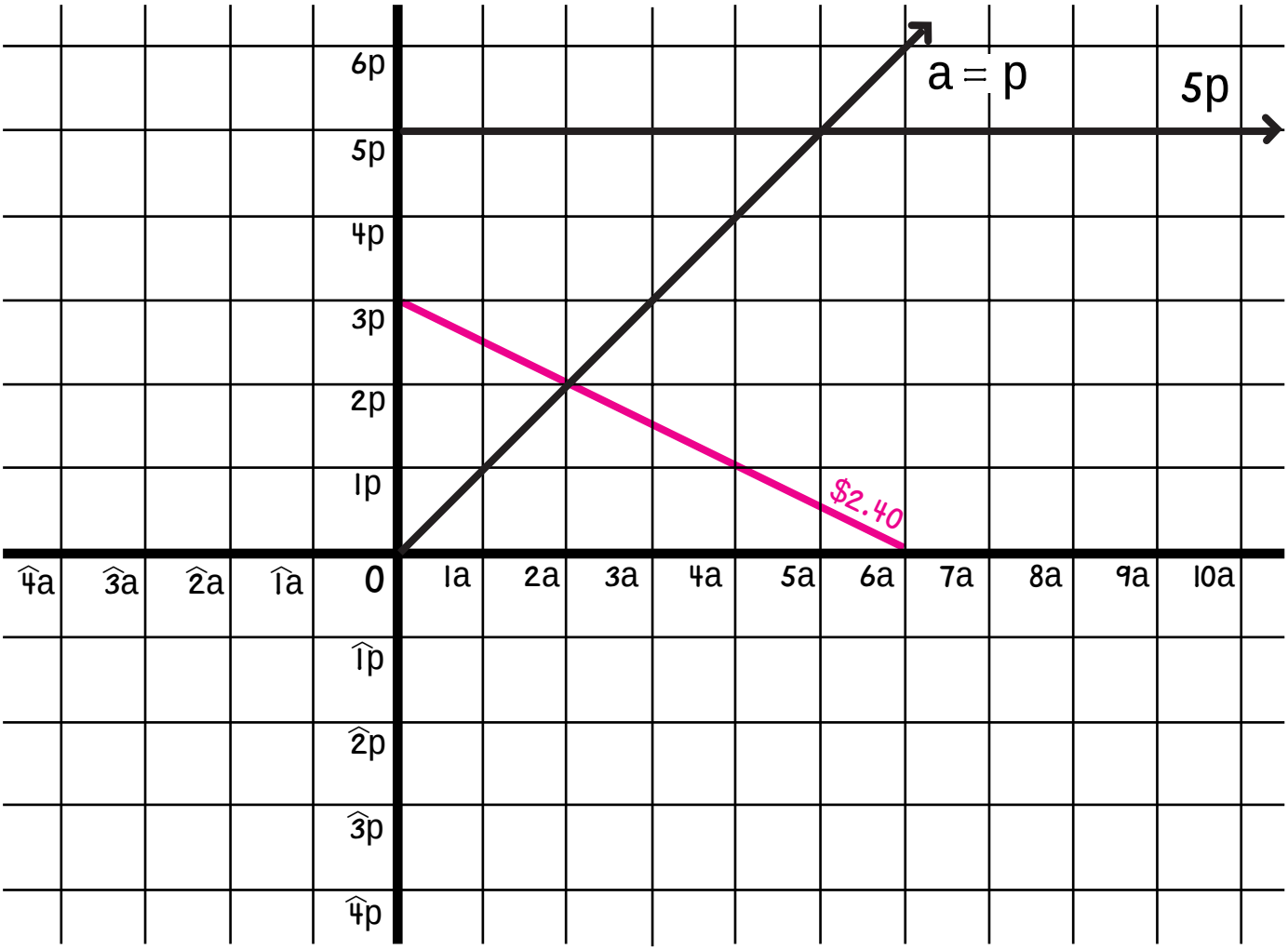


Name _____

N24(b)

Draw and label dots for these purchases.

3a + 4p 3a + $\hat{4}$p $\hat{2}$a + 1p $\hat{4}$a + $\hat{4}$p $\hat{3}$a + 0p



Name _____

N24(c)

p (1a) = 40¢ p (1p) = 80¢

Calculate the cost of each purchase.

p (3a + 5p) = _____

p (8a + $\widehat{3}$p) = _____

p (7a + 3p) = _____

p ($\widehat{5}$a + 6p) = _____

p (1.5a + 4.5p) = _____

p ($\widehat{3.5}$a + 2.5p) = _____

$1.60

Complete to make each purchase cost $1.60.

2a + _____p

_____a + 0.5p

1a + _____p

_____a + $\widehat{1}$p

$\widehat{4}$a + _____p

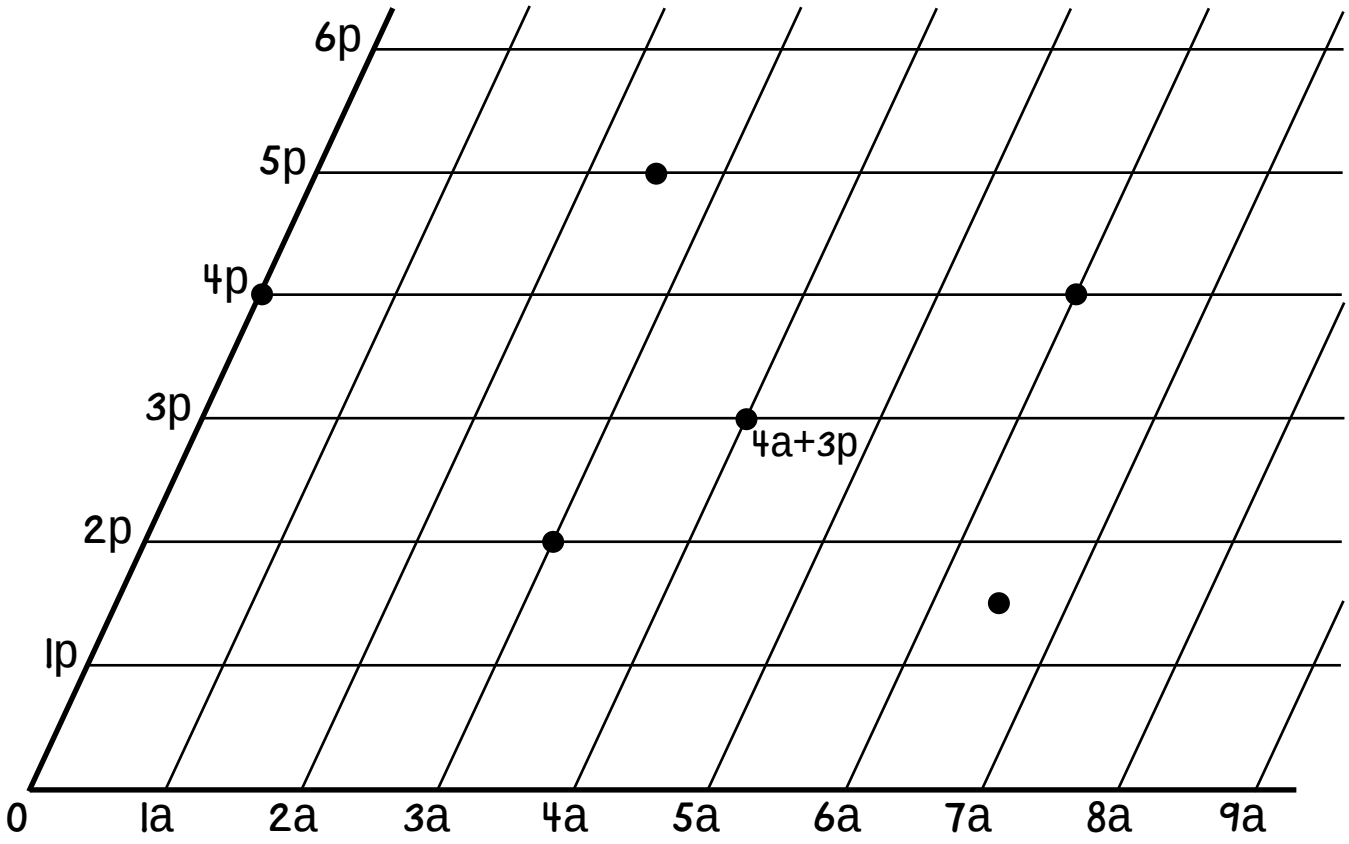
8a + _____p

Draw dots on the grid on Worksheet N24(b) for these $1.60 purchases. Connect the six dots with a line.

Name _____

N26 *

Label the dots on the grid. One is done for you.



Draw and label dots for these purchases.

2a + 4p

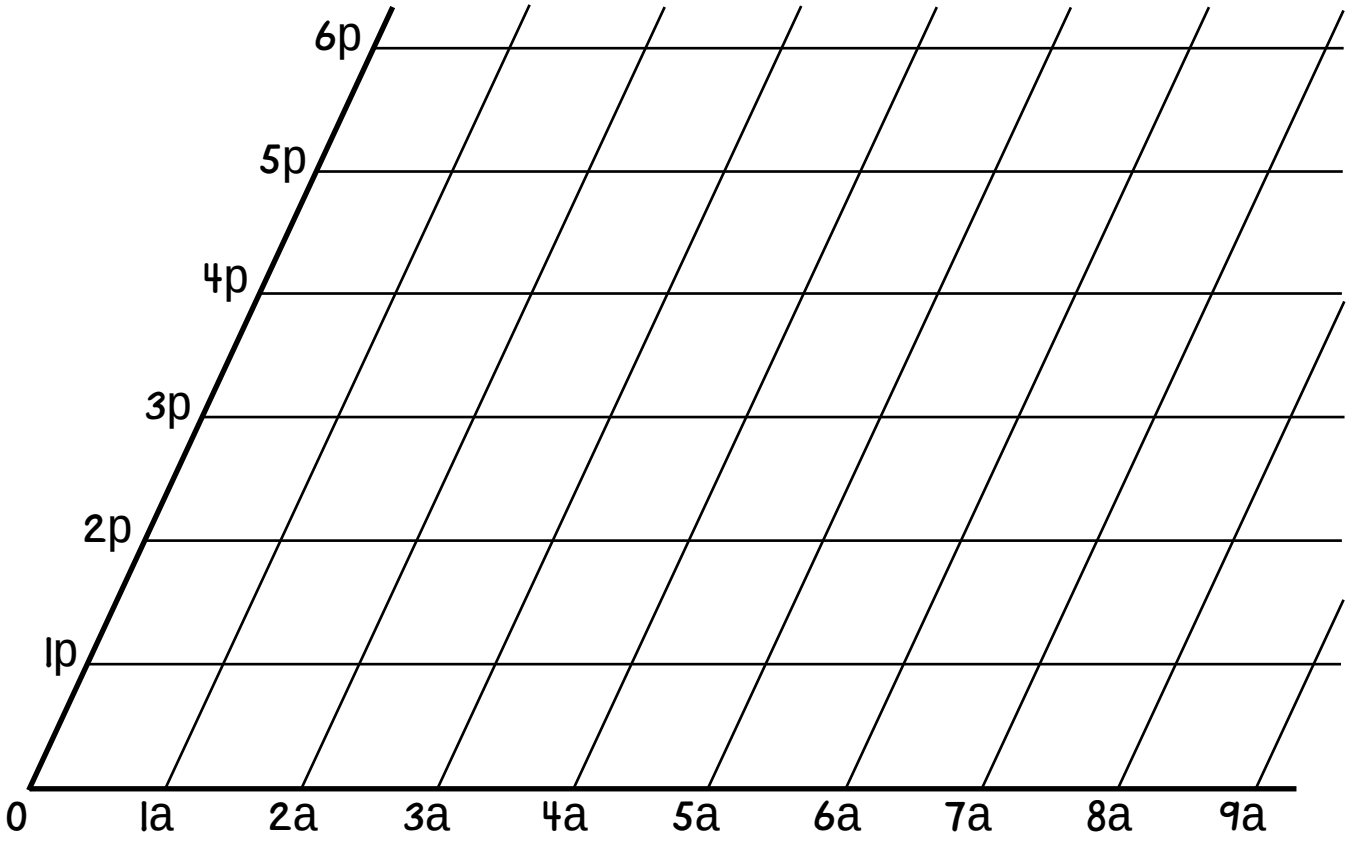
5a + 0p

5a + 4.5p

2.5a + 3.5p

Name _____

N26 **



1. Arlene always purchases exactly 4 kg of apples. List four different purchases she could make.

   _____ ____a + 3.5p 4a + ____p ____a + 0p

   Draw a blue dot on the grid for each of these purchases. What do you notice? _____

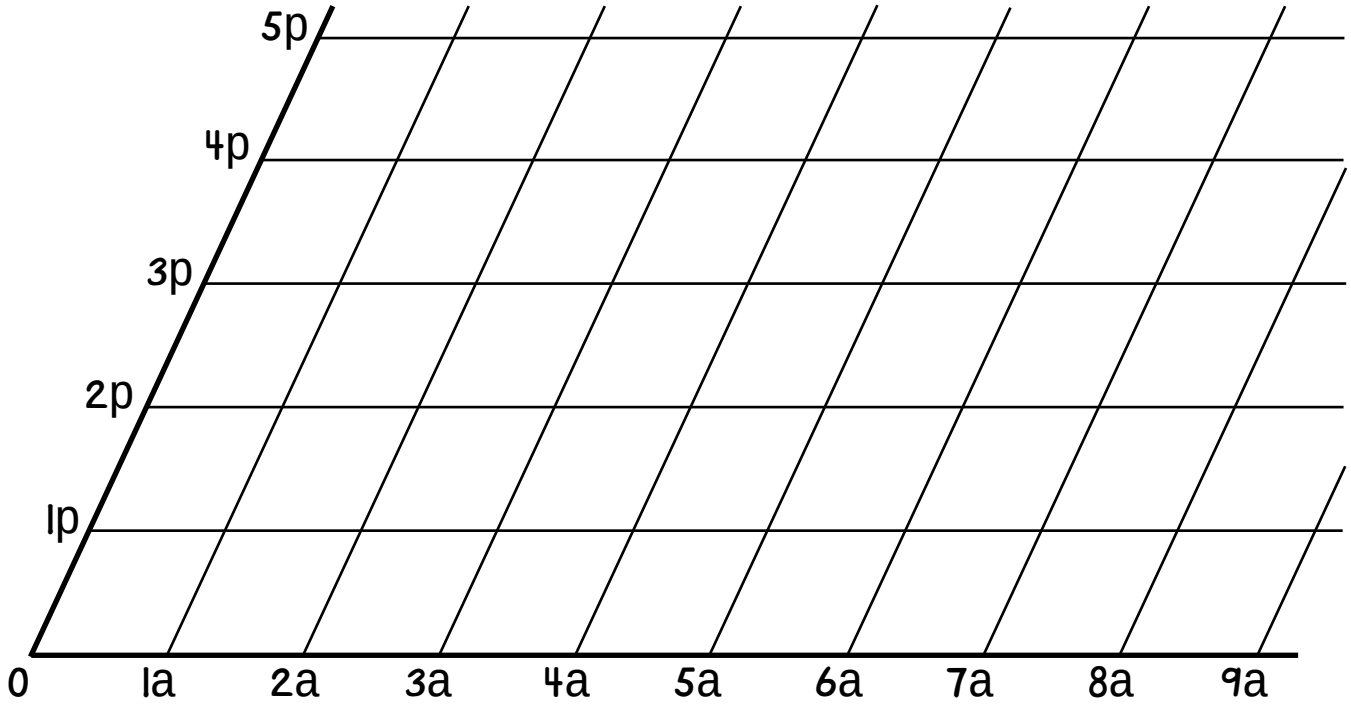
2. Mr. Crab always purchases 2 more kilograms of apples than peaches. List four different purchases he could make.

   _____ ____a + 5p 5.5a + ____p ____a + 0.5p

   Draw a red dot on the grid for each of these purchases. What do you notice? _____

Name _____

N26 ***



p (1a) = 40¢ p (1p) = 80¢

1. List four different $2.00 purchases.

_____ 4a + ____p ____a + 1.5p 2.5a + ____p

Draw a blue dot on the grid for each $2.00 purchase. Can you draw a straight line through the blue dots? _____

2. List four different $3.20 purchases.

_____ _____ ____a + 1.75p 5a + ____p

Draw a red dot on the grid for each $3.20 purchase. Can you draw a straight line through the red dots? _____

Use the graph to complete each of these $3.20 purchases.

3a + ____p ____a + 0.5p 1.5a + ____p 6.5 + ____p

Name _____

N27 *

Complete.

50% of 40 = ☐ 10% of 40 = ☐

25% of 40 = ☐ 20% of 40 = ☐

75% of 40 = ☐ 100% of 40 = ☐

Use the above results to help solve these problems.

40% of 40 = ☐ ☐% of 40 = 12

85% of 40 = ☐ ☐% of 40 = 24

35% of 40 = ☐ ☐% of 40 = 32

Name _____

N27 **

Complete this table of test results for an 80 question true-false test.

Student	Number Correct	% Correct
Willy		80%
Nancy		50%
George		55%
Ki Jong	60	
Maria	72	
Alphonso	48	

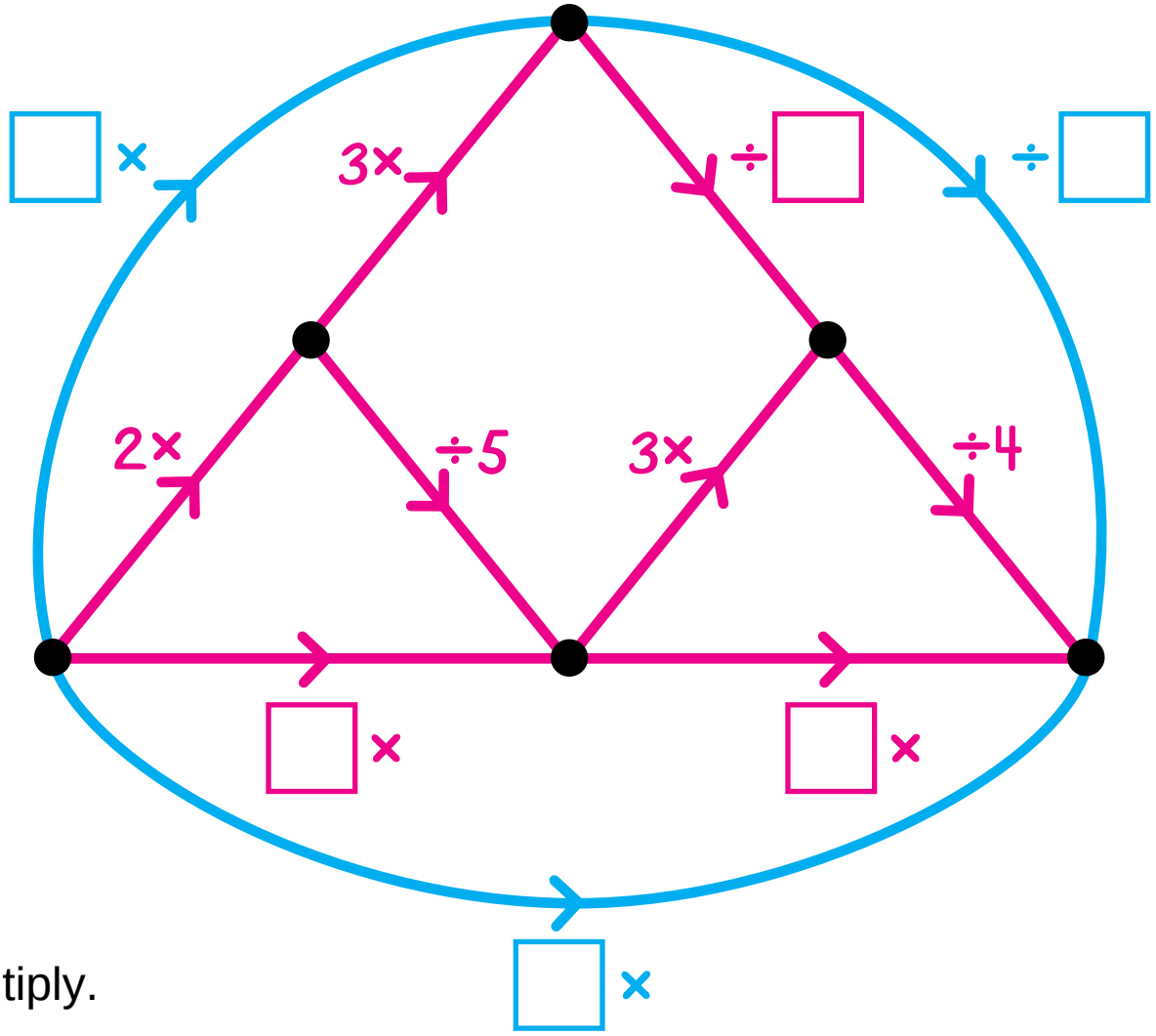
If 70% or better is a passing grade on this test, who passes? _____

How many questions must a person get correct to have a passing grade? _____

Name _____

N30 *

Label the dots and fill in the boxes for the arrows.



Multiply.

$\frac{2}{5} \times \frac{3}{4} = \square$

$\frac{4}{9} \times \frac{1}{4} = \square$

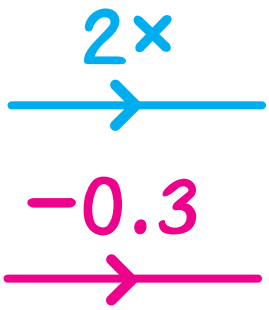
$\frac{5}{7} \times \frac{1}{8} = \square$

$\frac{5}{6} \times \frac{11}{20} = \square$

Name _____

N30 **

Build an arrow road from 3.2 to 4 using 2x and –0.3 arrows.



Did you use more than five arrows? _____

If your answer is yes, build another road using exactly five arrows.

Name _____ N30 ***

Flip is a secret number.

Clue 1

Flip's name can be written using each of these symbols exactly once.

0.2 0.5 2

+ ×) (

Flip could be _____, _____, _____, _____, _____, or _____.

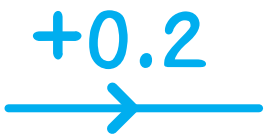
Clue 2

Who is Flip? _____

Name _____

N30 ****

Build an arrow road from 20 to 0.04 using x0.2 and +0.2 arrows.



0.04

20

Name _____

N31 *

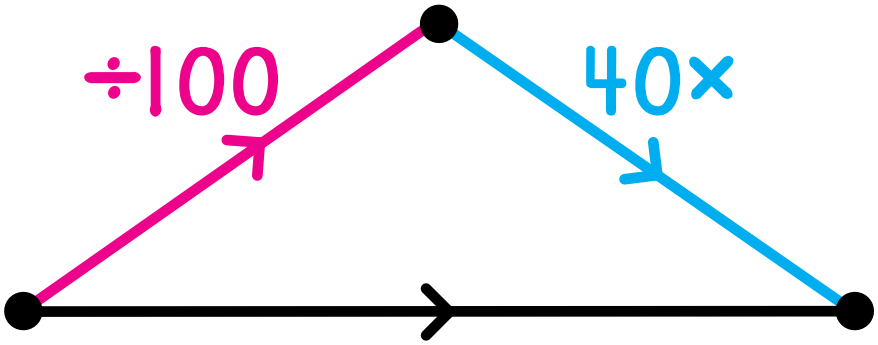
Complete.

100% of 16 =	50% of 80 =
50% of 16 =	25% of 80 =
150% of 16 =	10% of 80 =
75% of 16 =	5% of 80 =
25% of 16 =	15% of 80 =
125% of 16 =	35% of 80 =
10% of 60 =	50% of 72 =
5% of 60 =	25% of 72 =
15% of 60 =	75% of 72 =
20% of 60 =	10% of 72 =
40% of 60 =	35% of 72 =
45% of 60 =	85% of 72 =

Name _____

N31 **

Label the black arrow.



☐ × or ☐ % of

Give two other names for the black arrow: ☐ × or ☐ ×

Complete.

40% of 15 = ☐ 40% of 34 = ☐

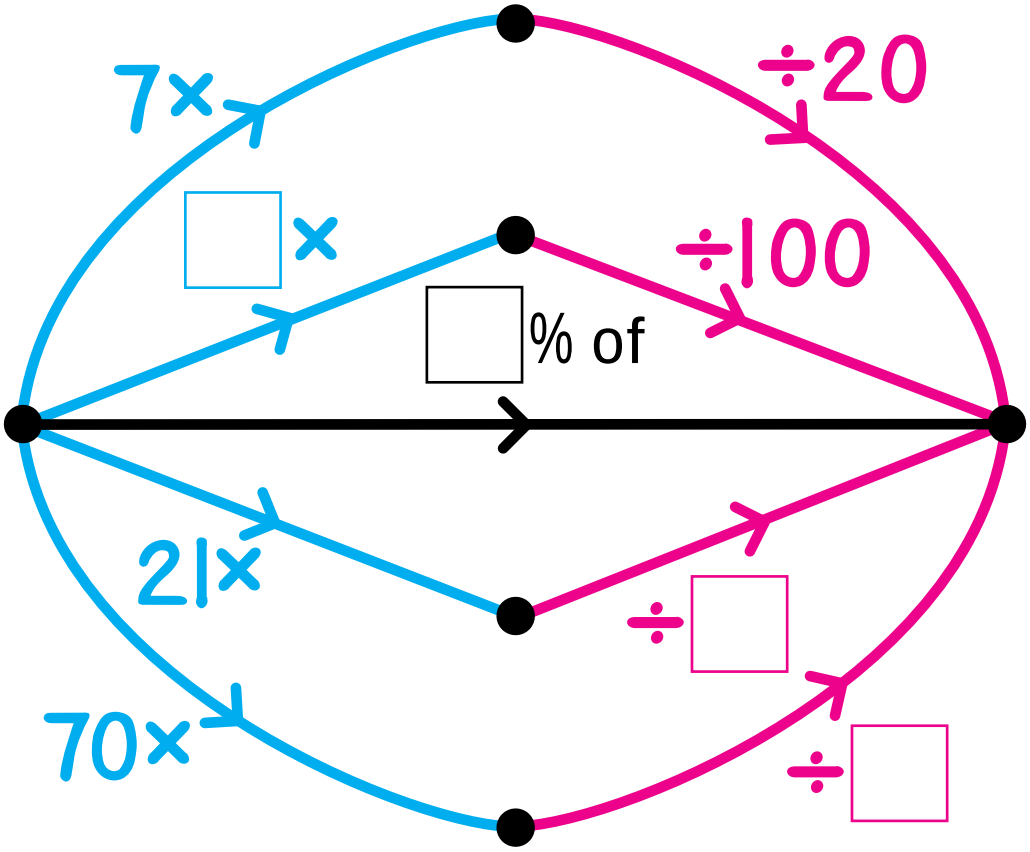
40% of 80 = ☐ 40% of 12 = ☐

40% of ☐ = 80 40% of ☐ = 12

Name _____

N31 ***

Label the arrows.



Complete.

$\frac{7}{20}$ × 300 = □

35% of 40 = □

35% of 300 = □

35% of 14 = □

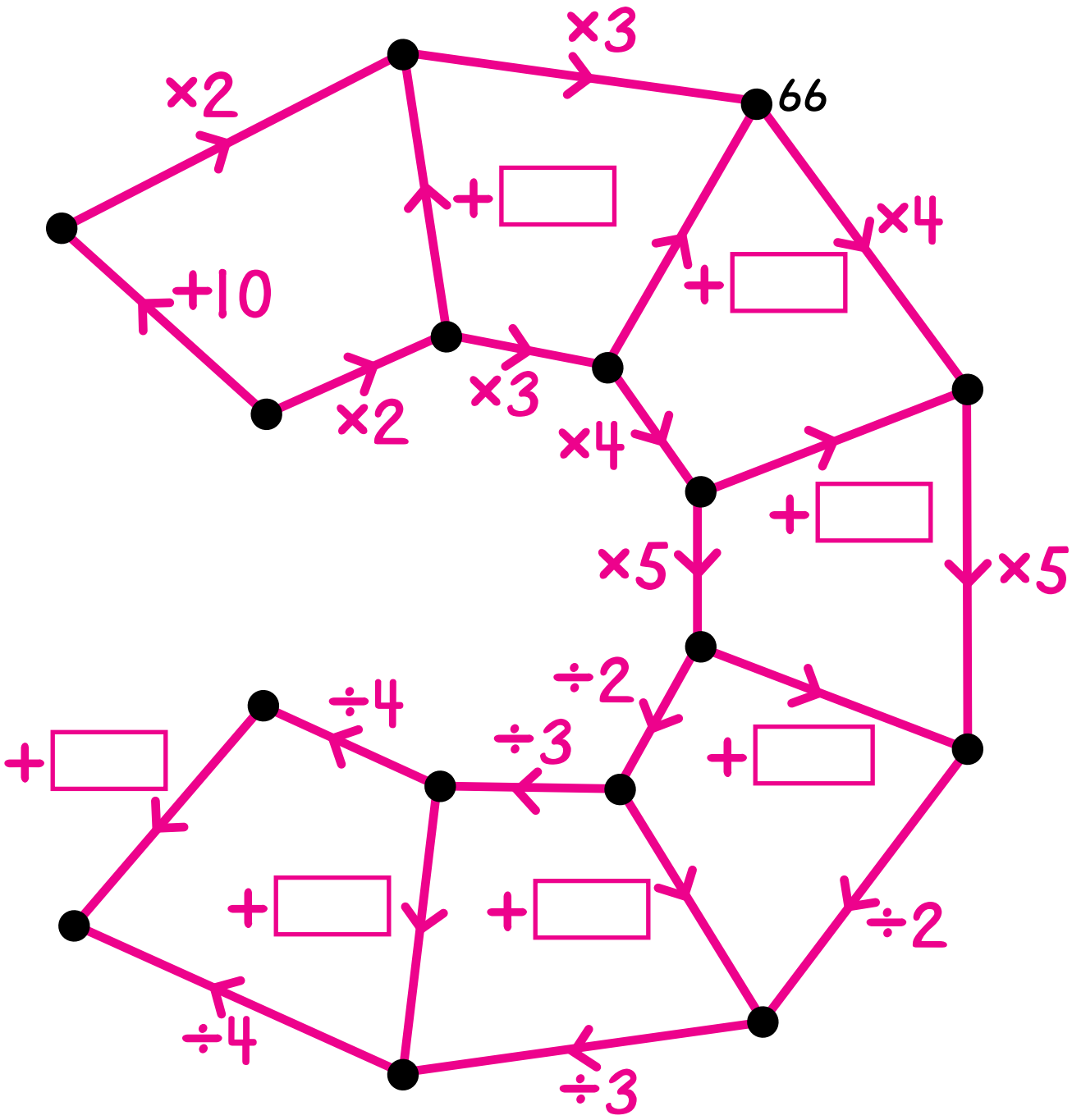
35% of □ = 280

35% of □ = 14

Name _____

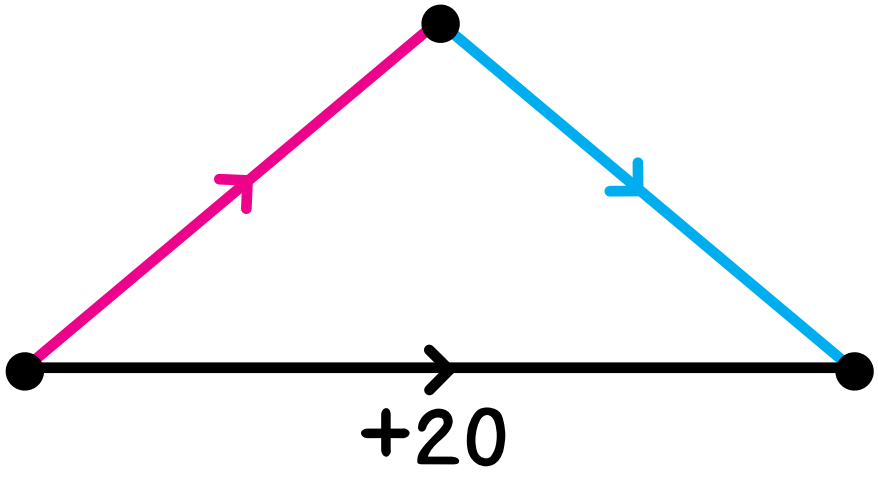
N34 *

Label the dots and fill in the boxes for the arrows.



Name _____

N34 **



Complete the charts.

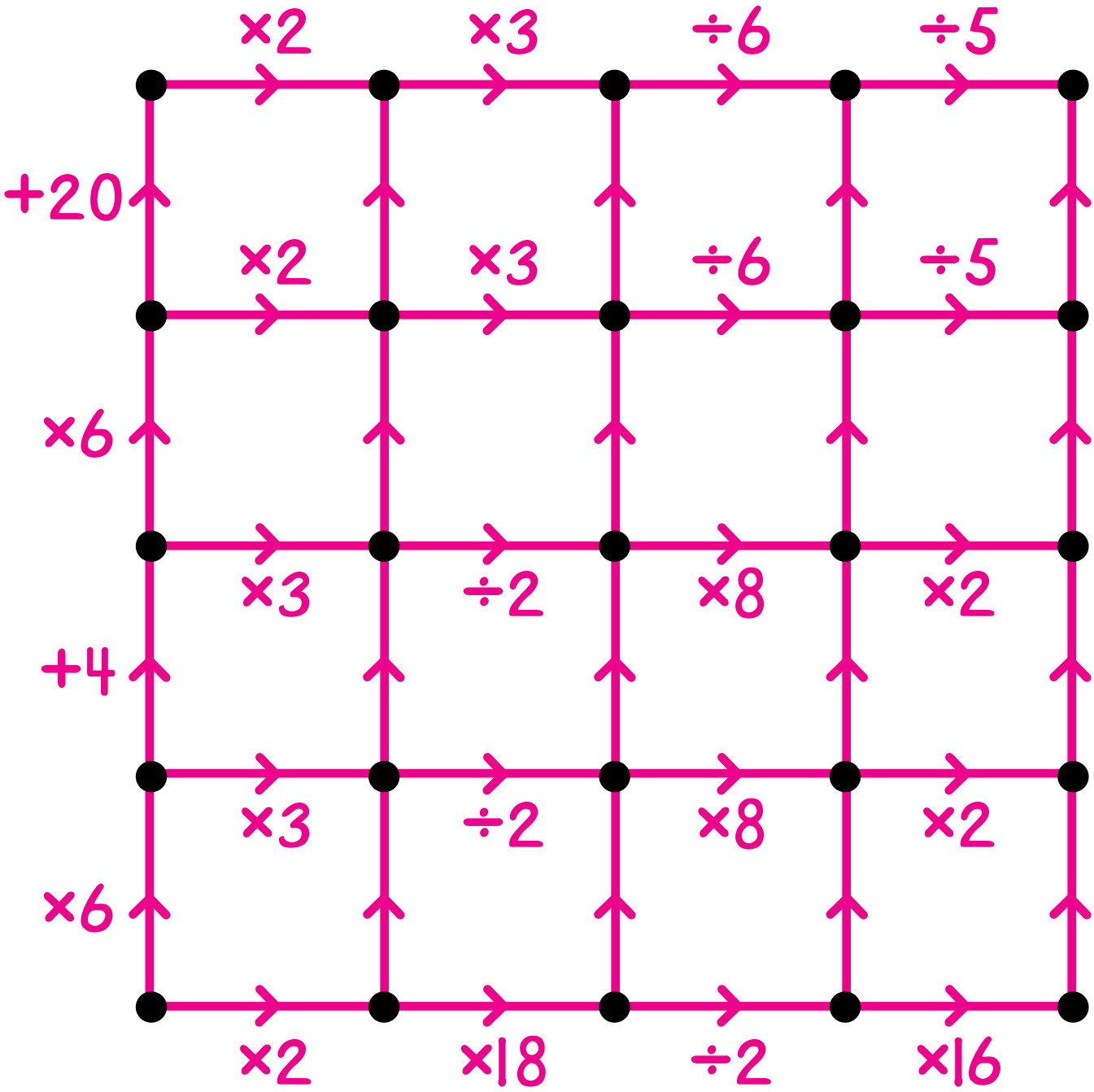
→	→
+13	+7
−8	
	−12
−105	
	+75

→	→
+7.5	
	+12.8
−2.4	
	+30.5
+8.75	
	−3.25
+1 001	

Name _____

N34 ***

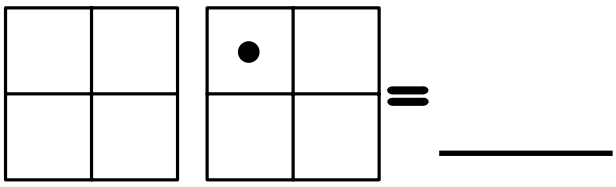
Label each arrow that is not labeled. Each arrow should be labeled +, −, ×, or ÷ some whole number.

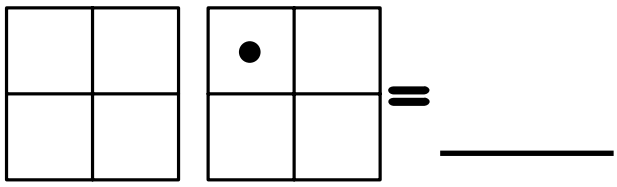


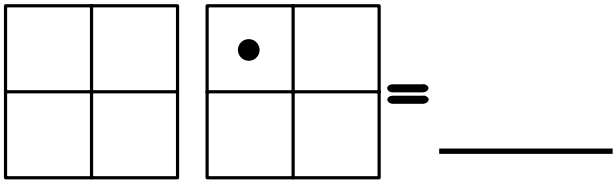
Name _____

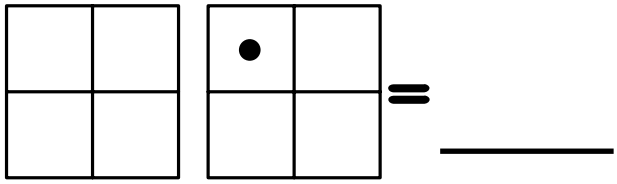
N35 *

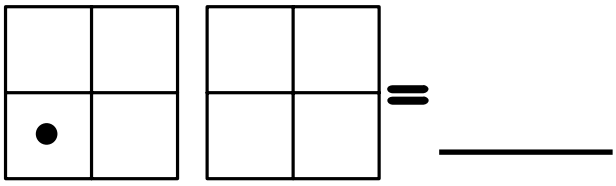
Add a regular checker to each Minicomputer to get a multiple of 3.

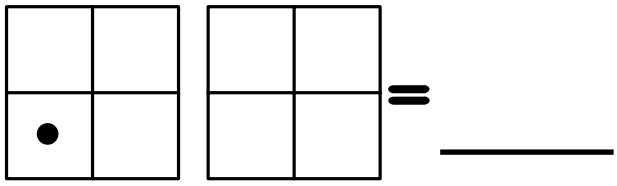


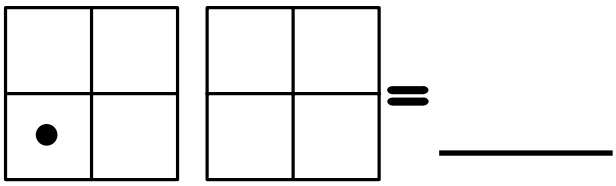


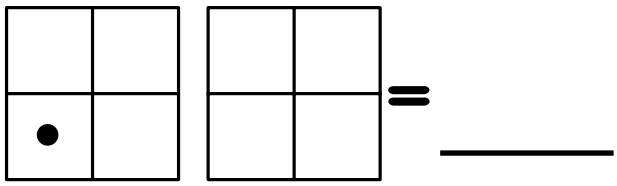








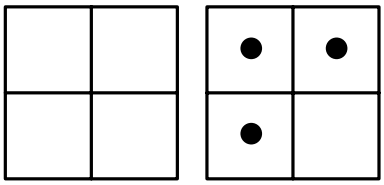


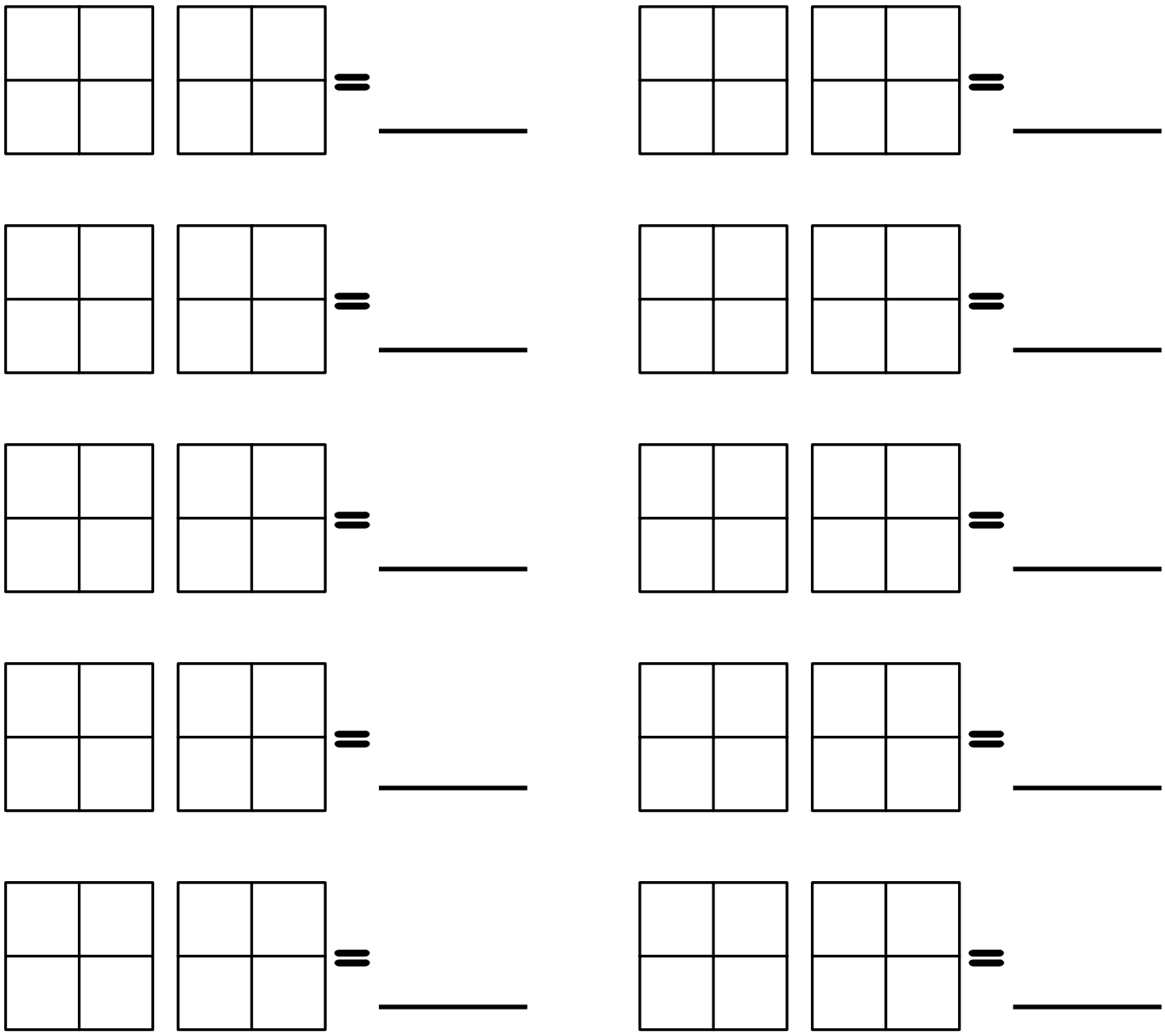


Name _____

N35 **

By moving exactly one of these checkers to another square, find as many multiples of 4 as you can.



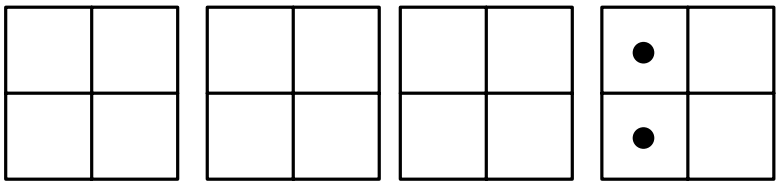


Name _____

N35 ***

Nick is a secret number.

Clue 1



Nick can be put on this Minicomputer by moving one of these checkers to the hundreds board or to the thousands board.

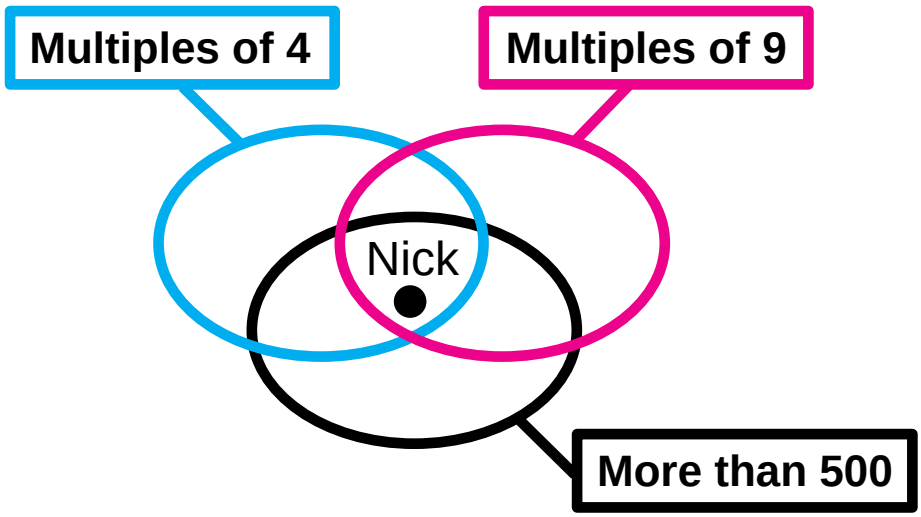
If you move the checker on the 2-square, Nick could be

_____, _____, _____, _____, _____, _____, _____, or _____.

If you move the checker on the 8-square, Nick could be

_____, _____, _____, _____, _____, _____, _____, or _____.

Clue 2



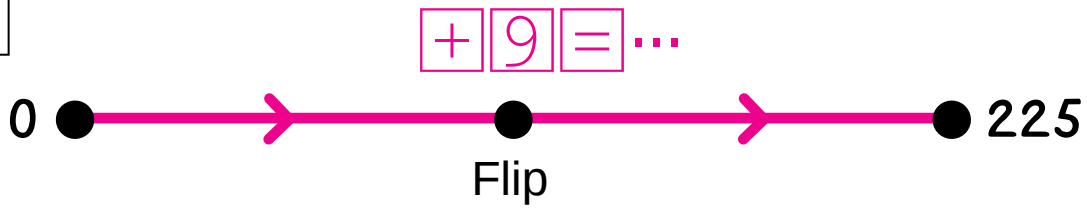
Who is Nick? _____

Name _____

N35 ****

Flip is a secret number.

Clue 1



Flip could be:

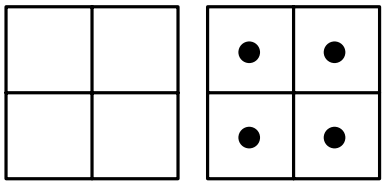
_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

_____, _____, _____, _____, _____, _____, _____, _____, _____, _____,

_____, _____, _____, or _____.

Do you notice any interesting patterns?

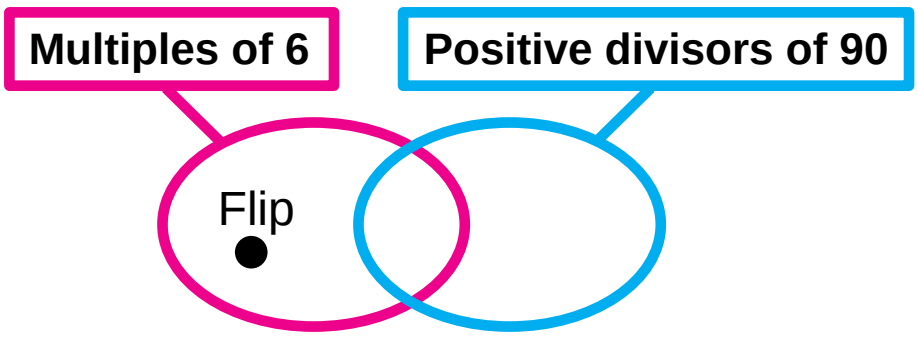
Clue 2



Flip can be put on this Minicomputer by moving one checker to another square.

Flip could be _____, _____, _____, or _____.

Clue 3



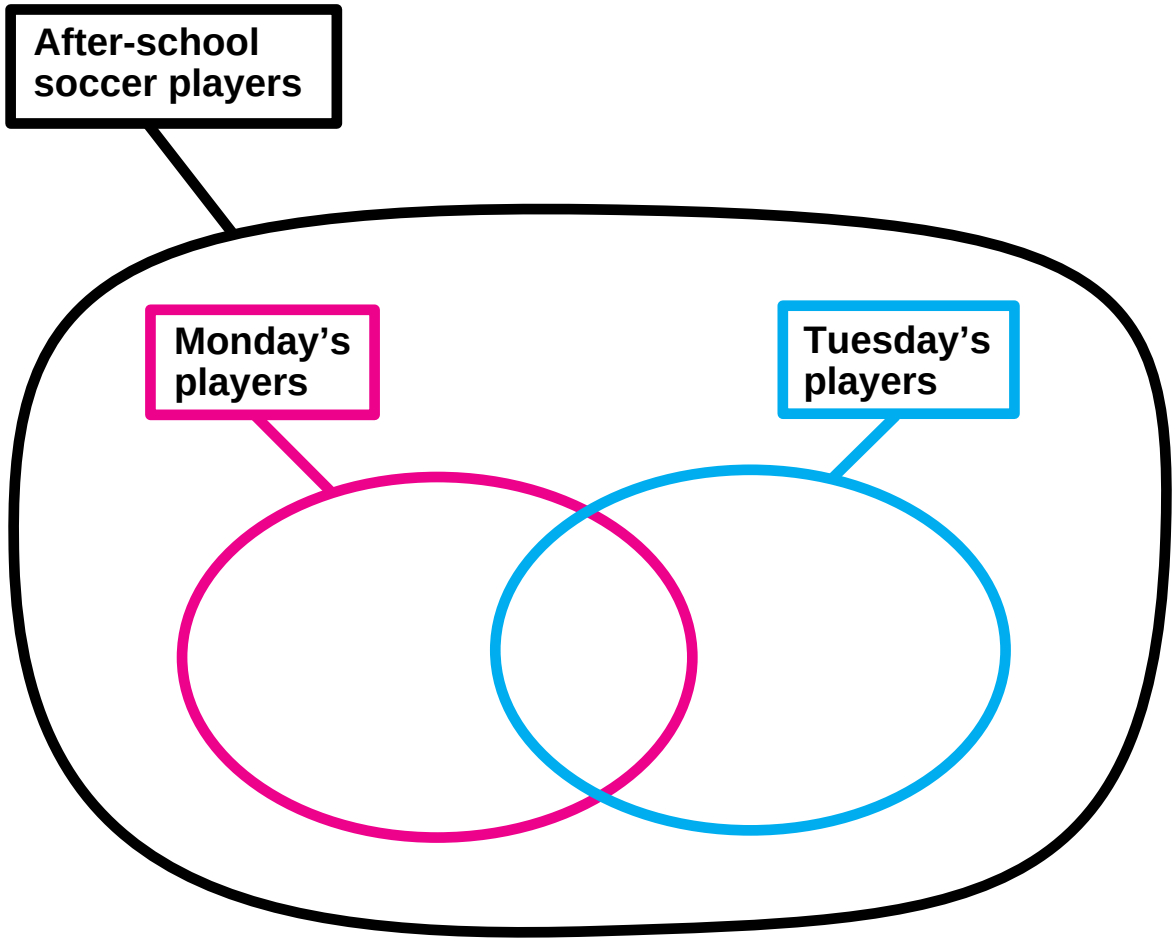
Who is Flip? _____

Name _____

L1(a)

1) Exactly 40 students in the school play soccer after school hours.
2) Exactly 22 of them play soccer on Mondays. Some of these students also play soccer on other days.
3) Exactly 16 of them play soccer on both Mondays and Tuesdays.
4) Exactly 8 students play soccer after school, but neither on Mondays nor on Tuesdays.

Use the clues to determine the number of students in each region inside the black string.

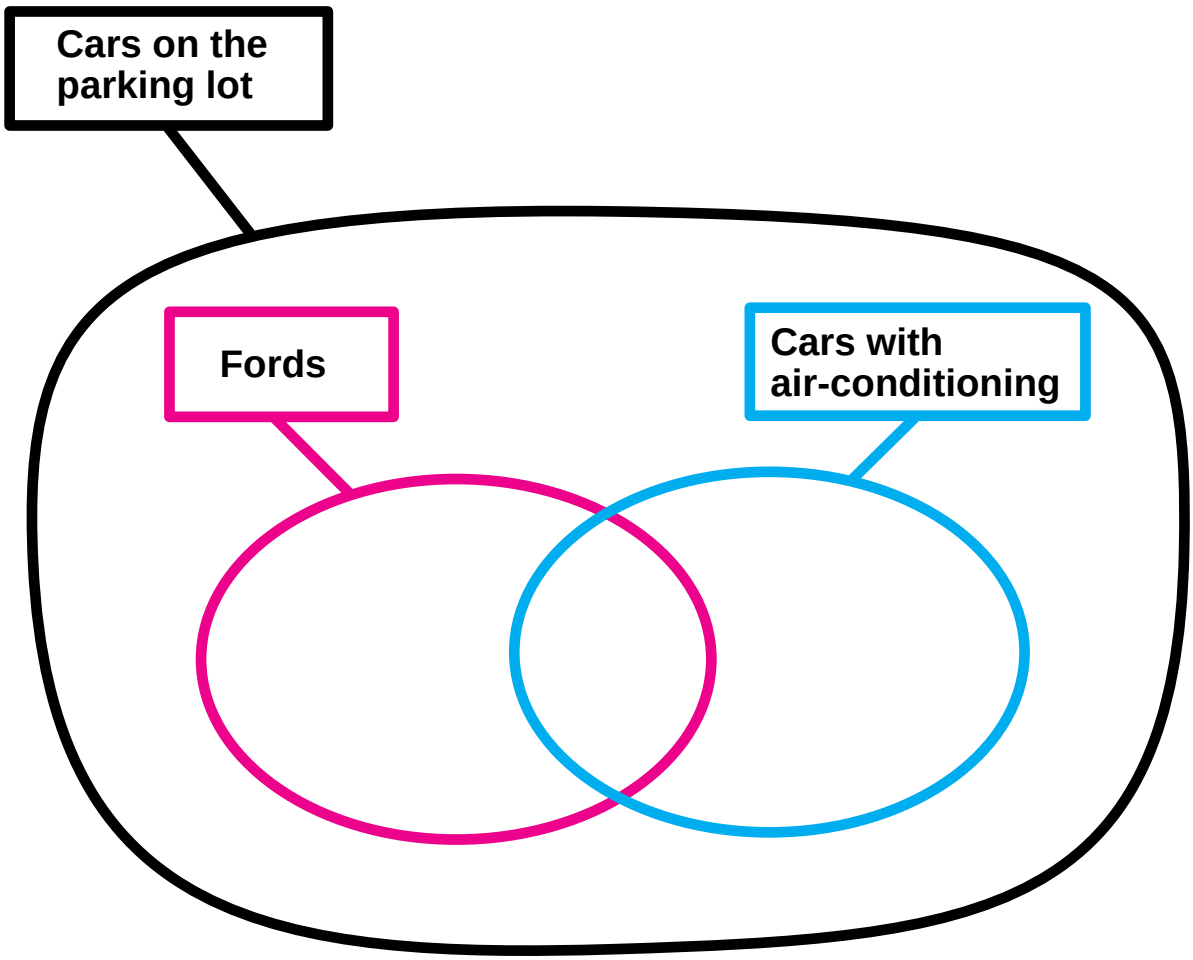


Name _____

L1(b)

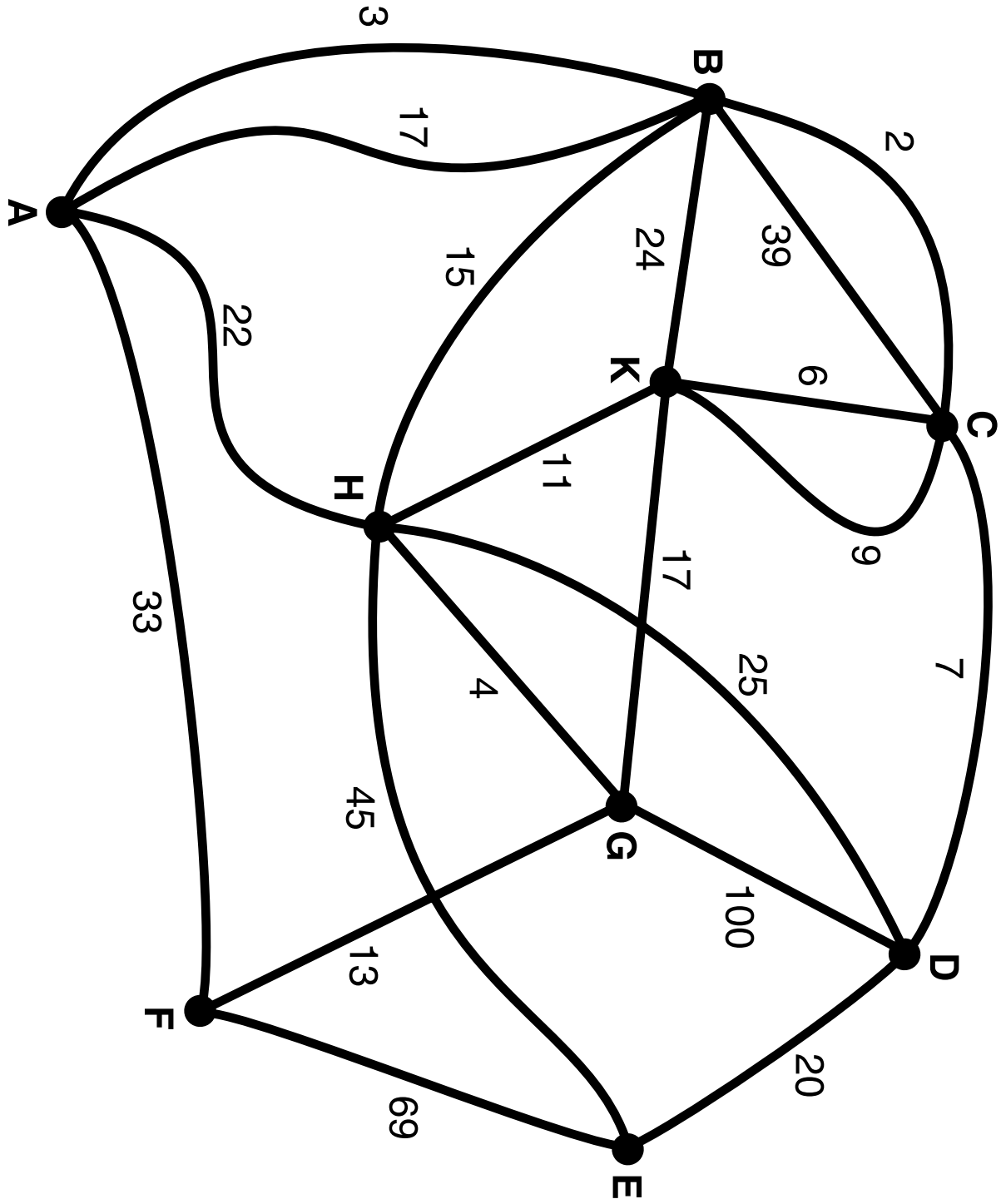
1) There are exactly 100 cars on the parking lot.
2) Exactly 30 cars on the lot are not Fords and do not have air-conditioning.
3) Exactly 50 cars on the lot are Fords.
4) Exactly 60 cars on the lot have air-conditioning.

Use the clues to determine the number of cars in each region inside the black string.



Name _____

L3(a)



Name _____

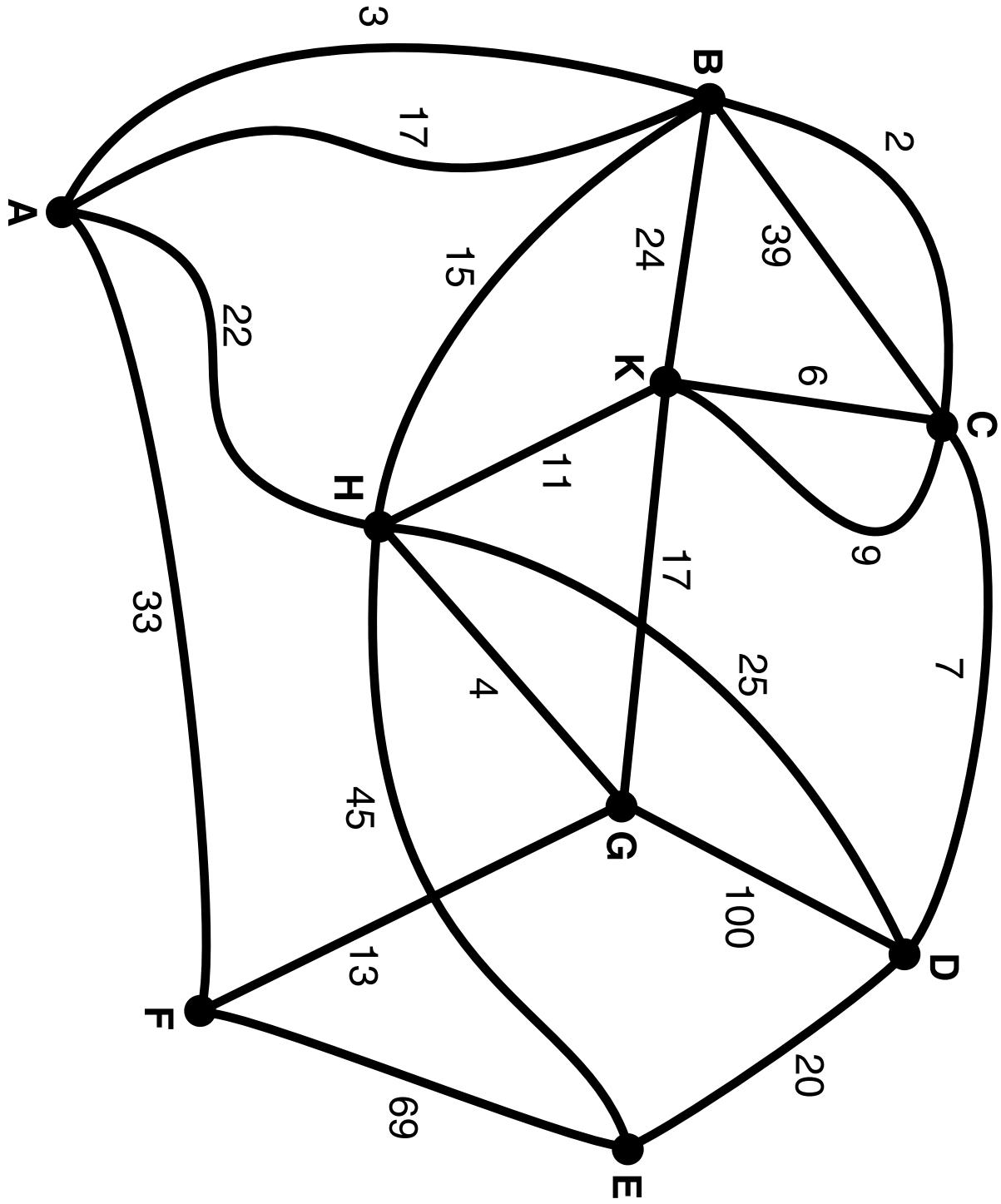
L3(b)

Find the distance between each pair of points.

	A	B	C	D	E	F	G	H	K
A									
B									
C						34			
D									
E									
F			34						
G									
H									
K									

Name _____

L4(a)



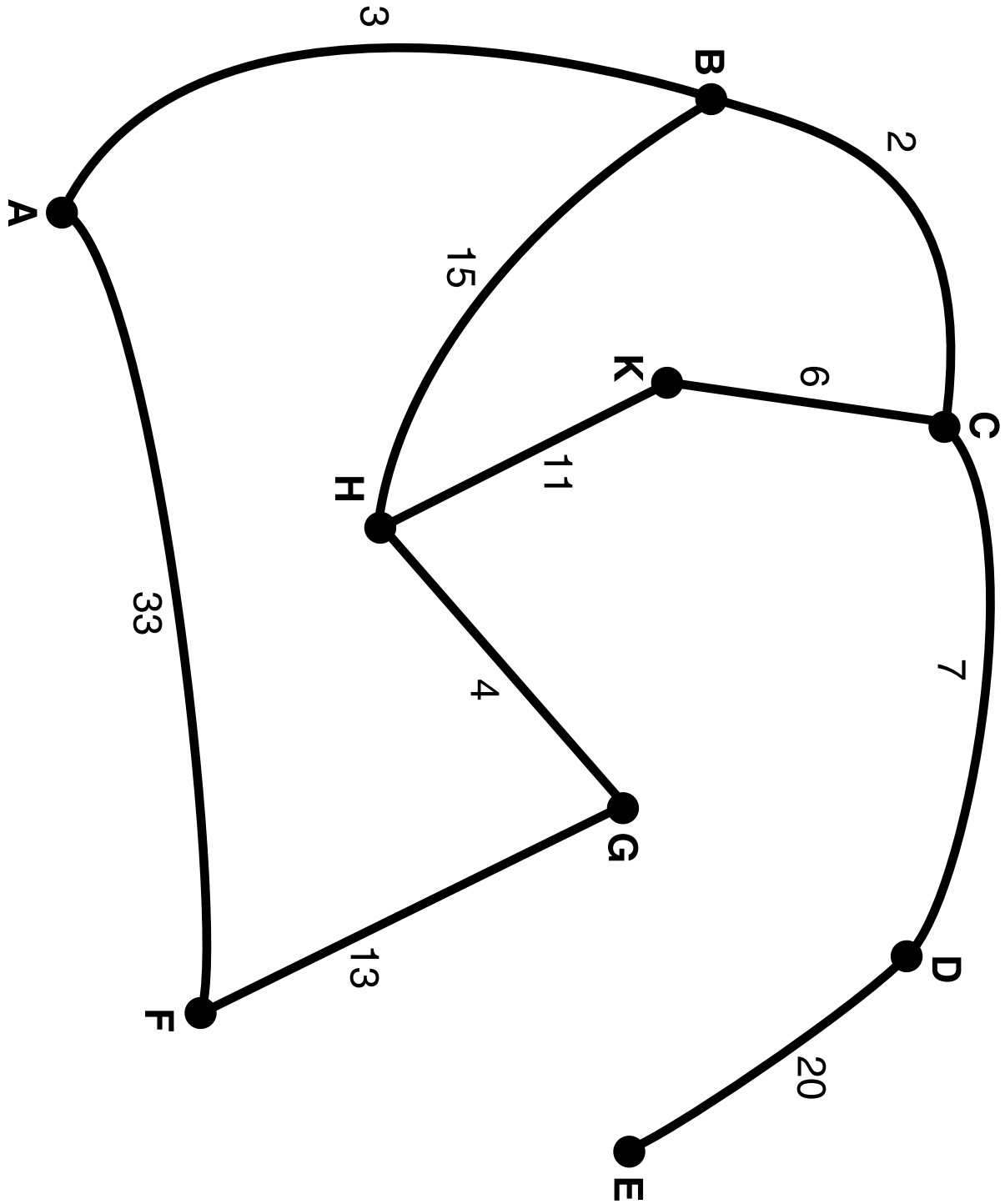
Name _____

L4(b)

	A	B	C	D	E	F	G	H	K
A	0	3	5	12	32	33	22	18	11
B	3	0	2	9	29	32	19	15	8
C	5	2	0	7	27	34	21	17	6
D	12	9	7	0	20	41	28	24	13
E	32	29	27	20	0	61	48	44	33
F	33	32	34	41	61	0	13	17	28
G	22	19	21	28	48	13	0	4	15
H	18	15	17	24	44	17	4	0	11
K	11	8	6	13	33	28	15	11	0

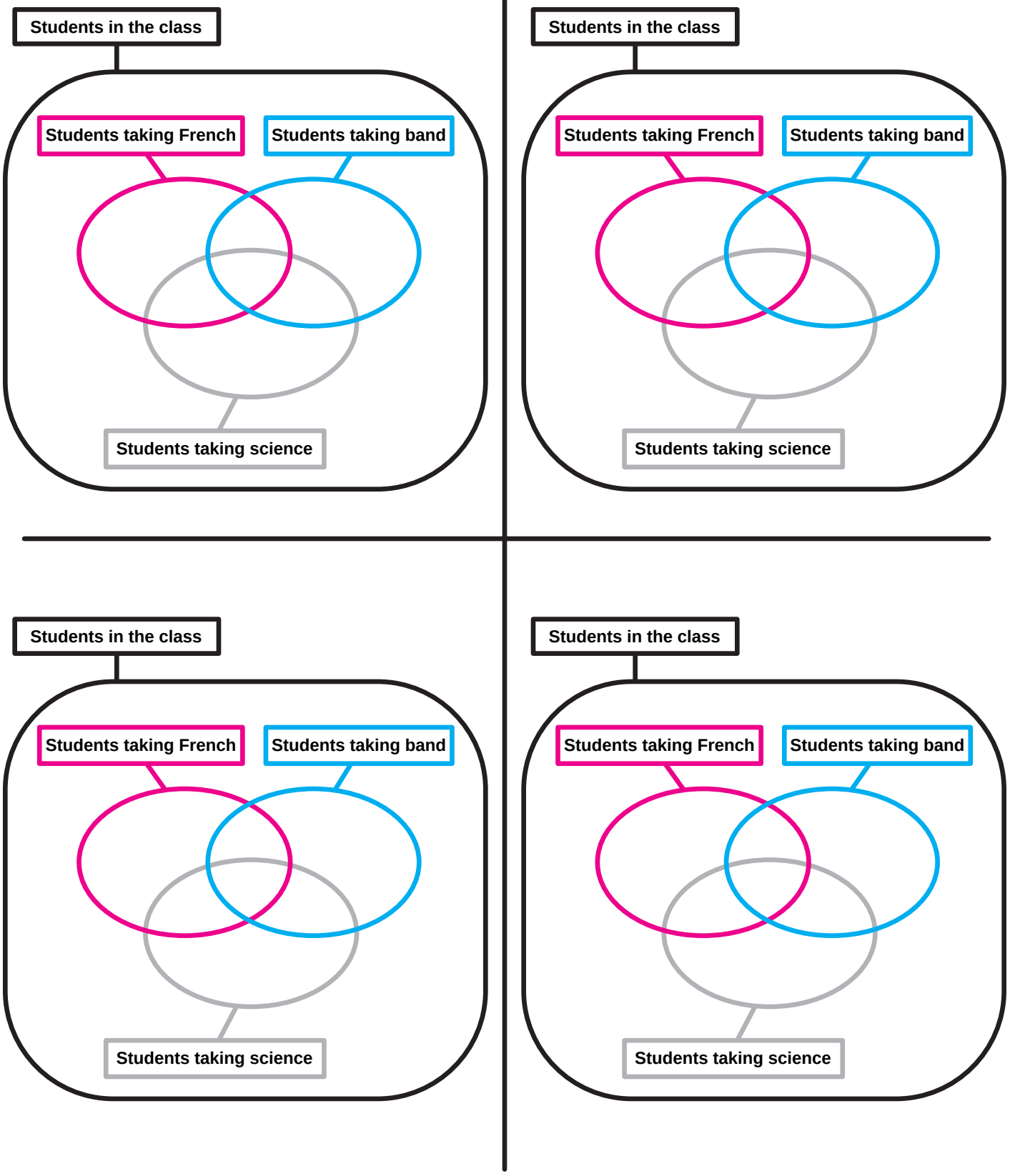
Name _____

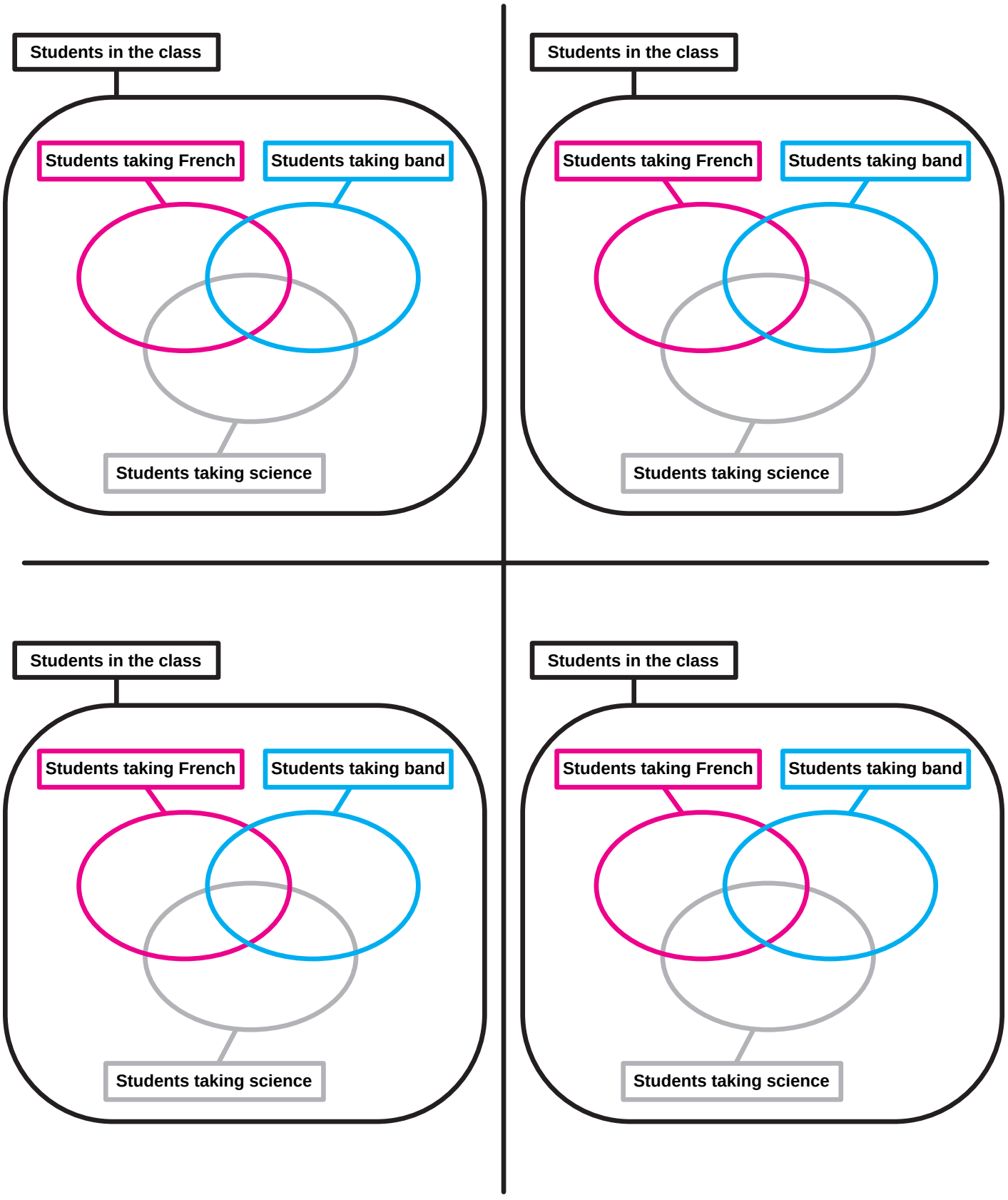
L4(c)



Name _____

L6

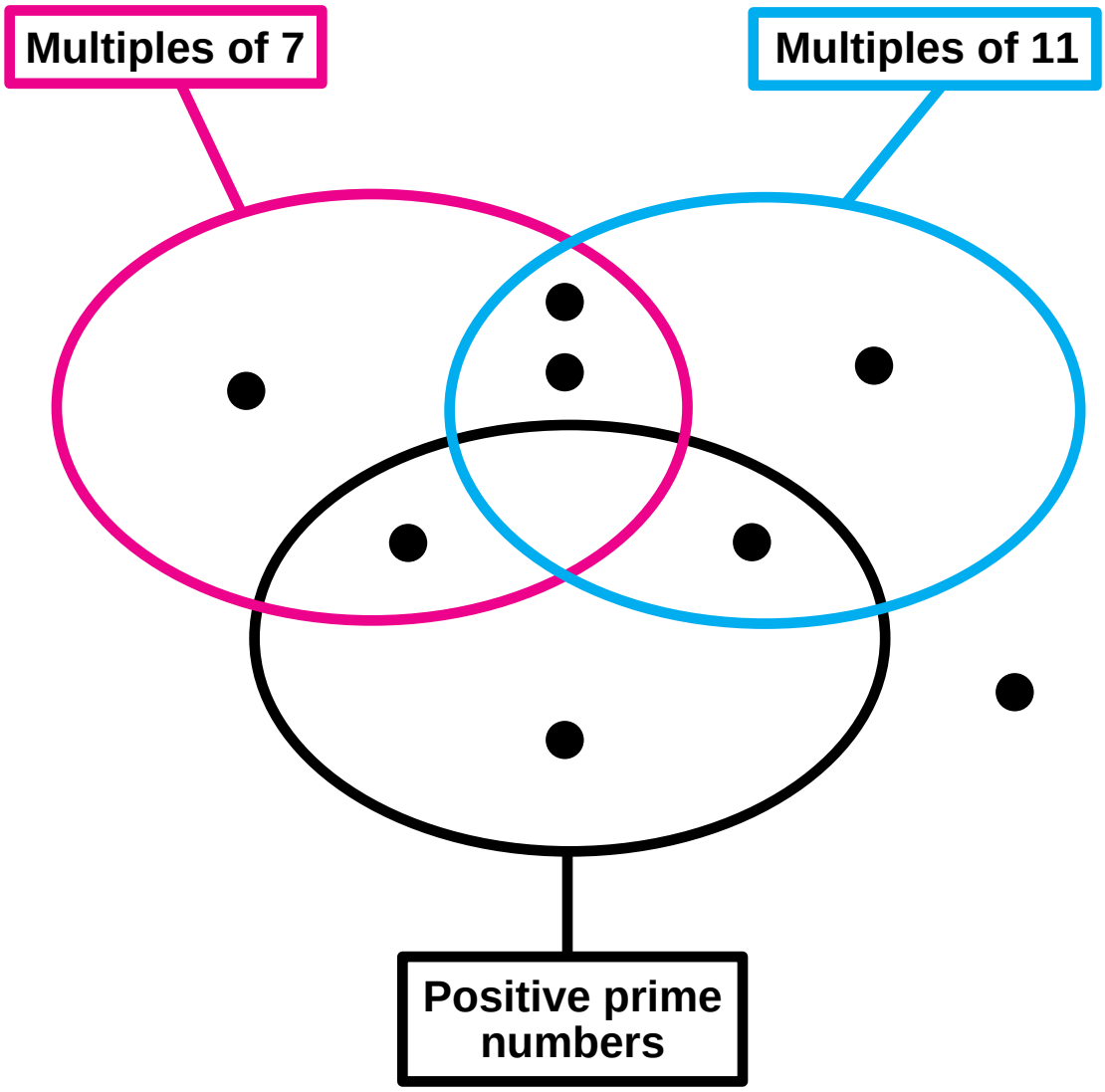

Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science


Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science
Students in the class
Students taking French
Students taking band
Students taking science

Name _____ L7 *

Label each dot in the string picture with one of these numbers.

0 1 5 7 11 22 28 77



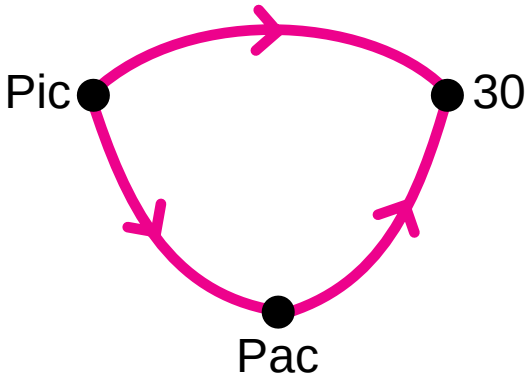
Which numbers, if any, belong in the middle region? _____

Name _____

L7 **

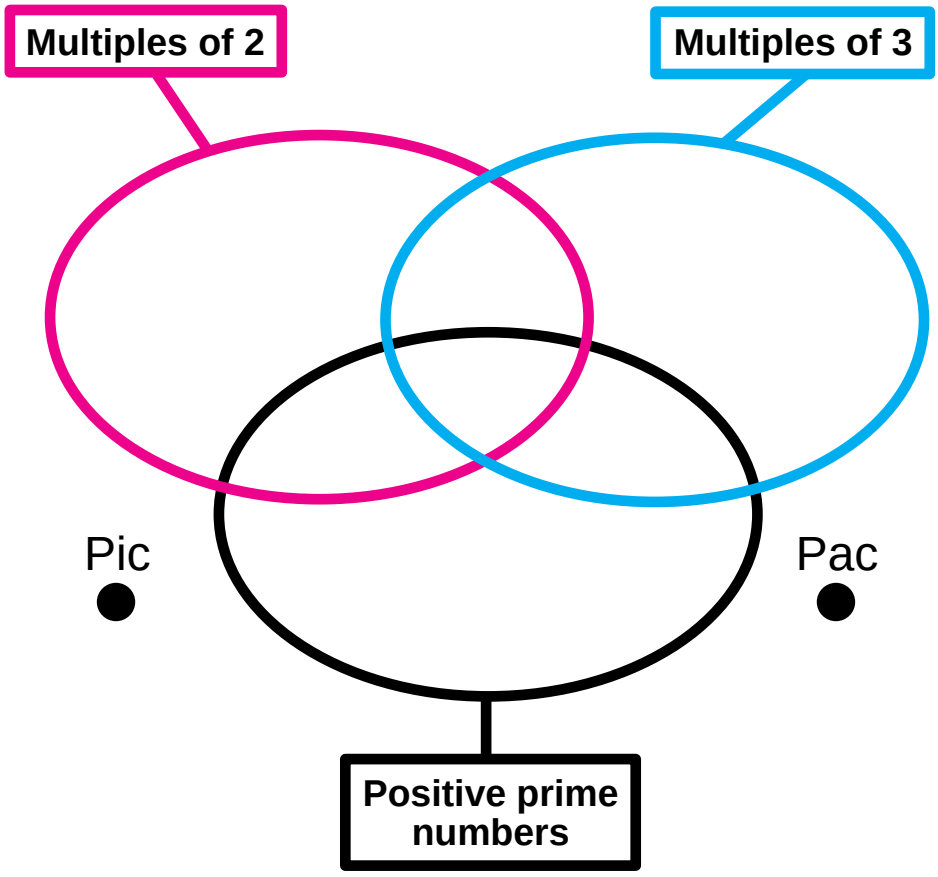
Pic and Pac are secret whole numbers.

Clue 1



is less than →

Clue 2



Who is Pic? _____

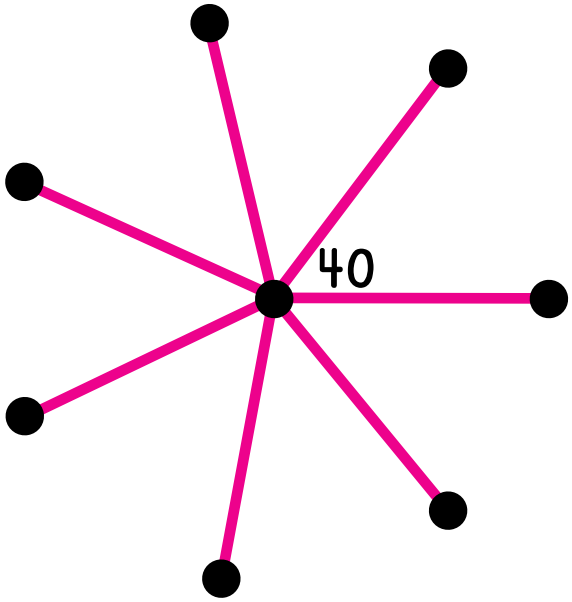
Who is Pac? _____

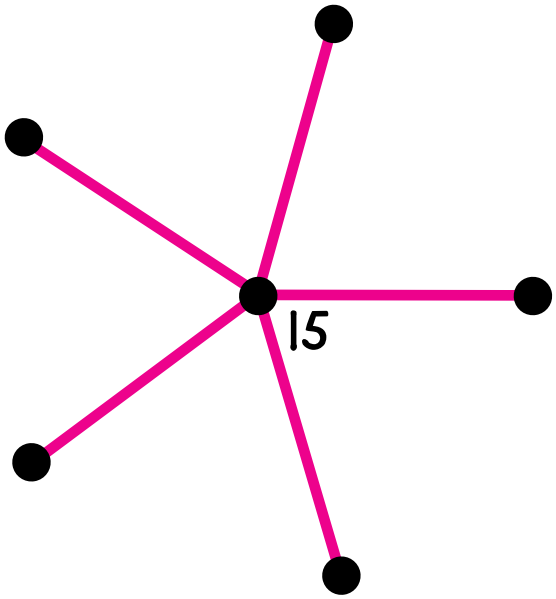
Name _____

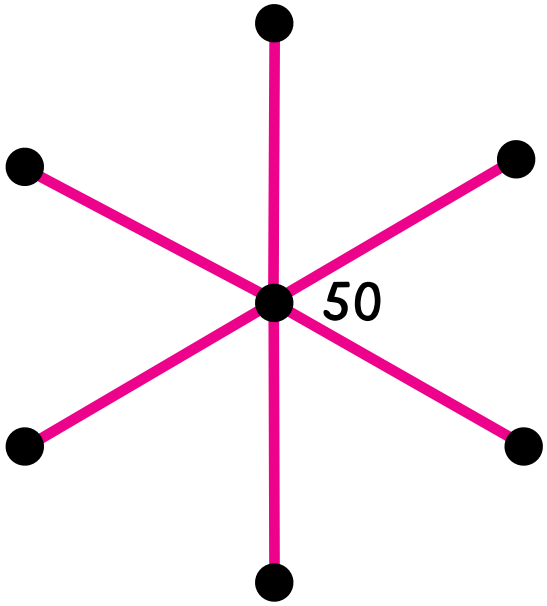
L10 *

Prime Factor Relation

Label the dots. Many solutions are possible.





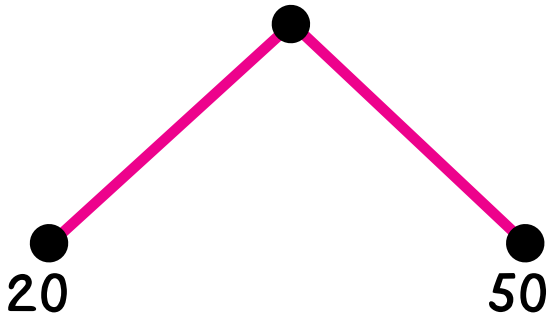


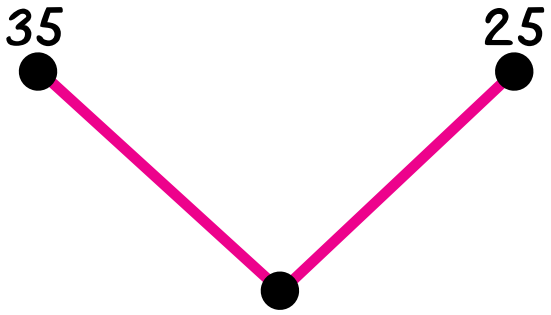
Name _____

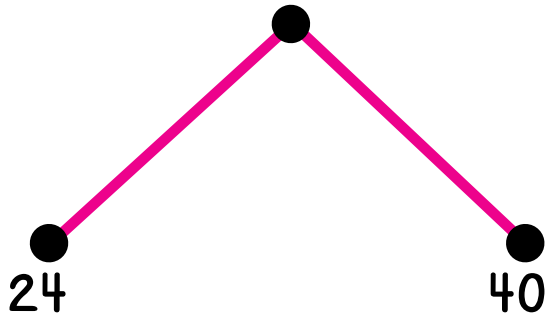
L10 **

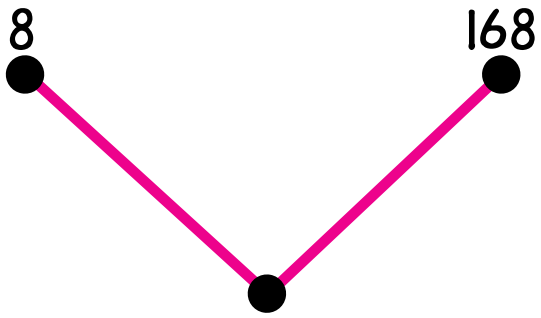
Prime Factor Relation

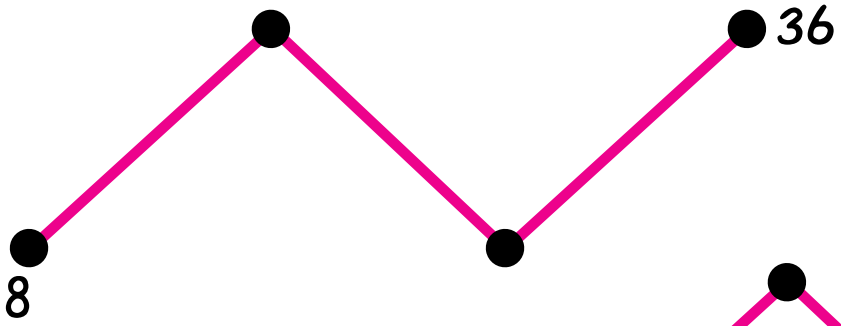
Label the dots. Many solutions are possible.

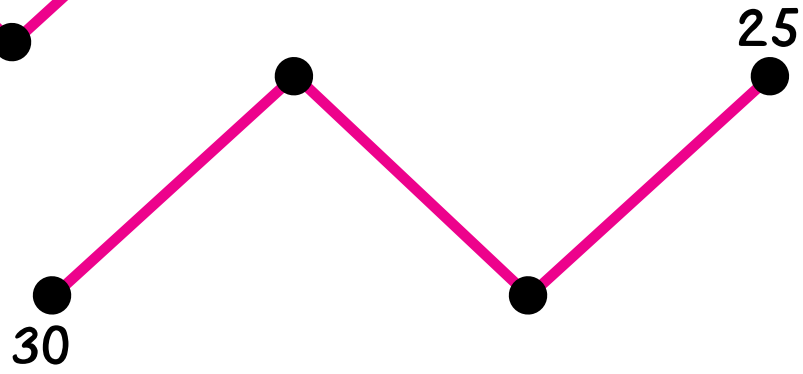












Name _____

G2 *

Find the largest cube that can be built with the given number of centimeter cubes. One problem is done for you.

Number of Centimeter Cubes	Dimensions	Volume
132 centimeter cubes	5 cm by 5 cm by 5 cm	125 cm^3
85 centimeter cubes		
324 centimeter cubes		
25 centimeter cubes		
113 centimeter cubes		
621 centimeter cubes		

Name _____

G2 **

Find the largest cube possible that can be built with 435 centimeter cubes. Then find the largest cube possible that can be built with the extra centimeter cubes. Keep doing this until no centimeter cubes are left over. The problem is started for you.

Dimensions	Volume	Number of Centimeter Cubes Available
7 cm by 7 cm by 7 cm	343 cm^3	435
		92 (435 − 343 = 92)

Find the largest cube possible that can be built with 664 centimeter cubes. Then find the largest cube possible that can be built with the extra centimeter cubes. Keep doing this until no centimeter cubes are left over.

Dimensions	Volume	Number of Centimeter Cubes Available
		664

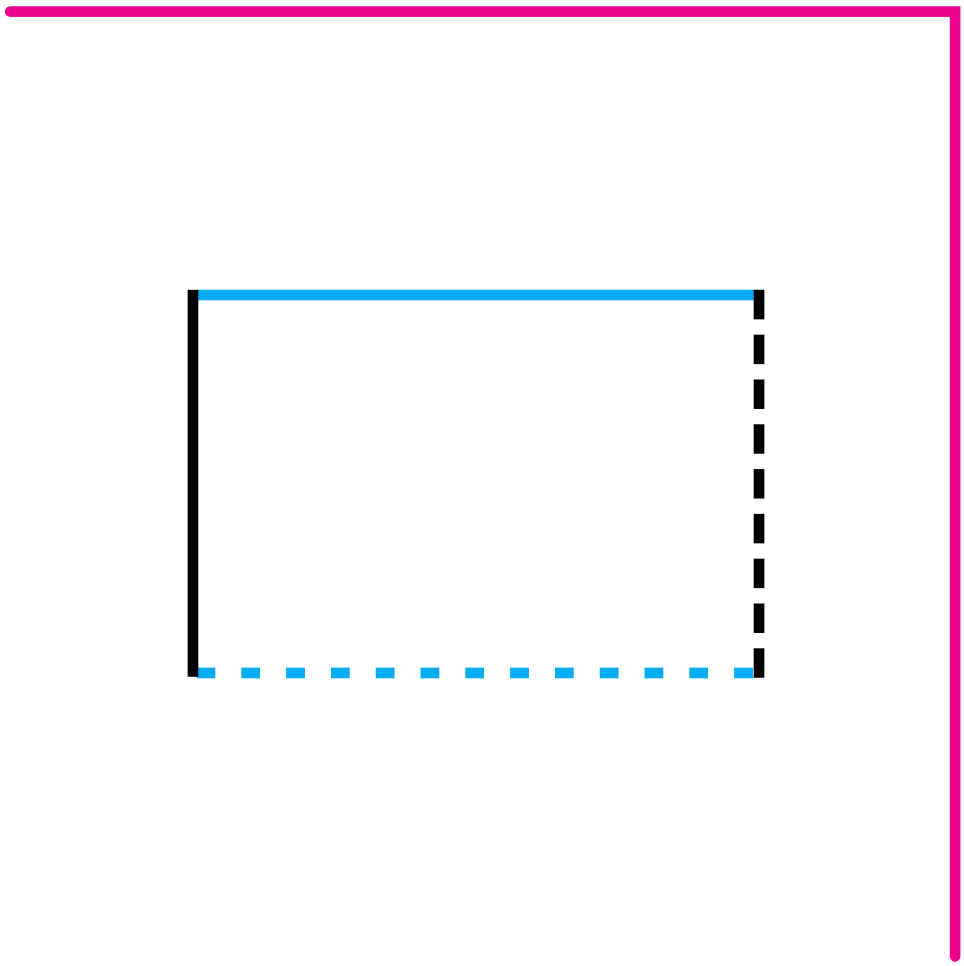
Name _____ G2 ***

Find the largest cube possible that can be built with 1 500 centimeter cubes. Then find the largest cube possible that can be built with the extra centimeter cubes. Keep doing this until no centimeter cubes are left over.

Find the largest cube possible that can be built with 2 045 centimeter cubes. Then find the largest cube possible that can be built with the extra centimeter cubes. Keep doing this until no centimeter cubes are left over.

Name _____

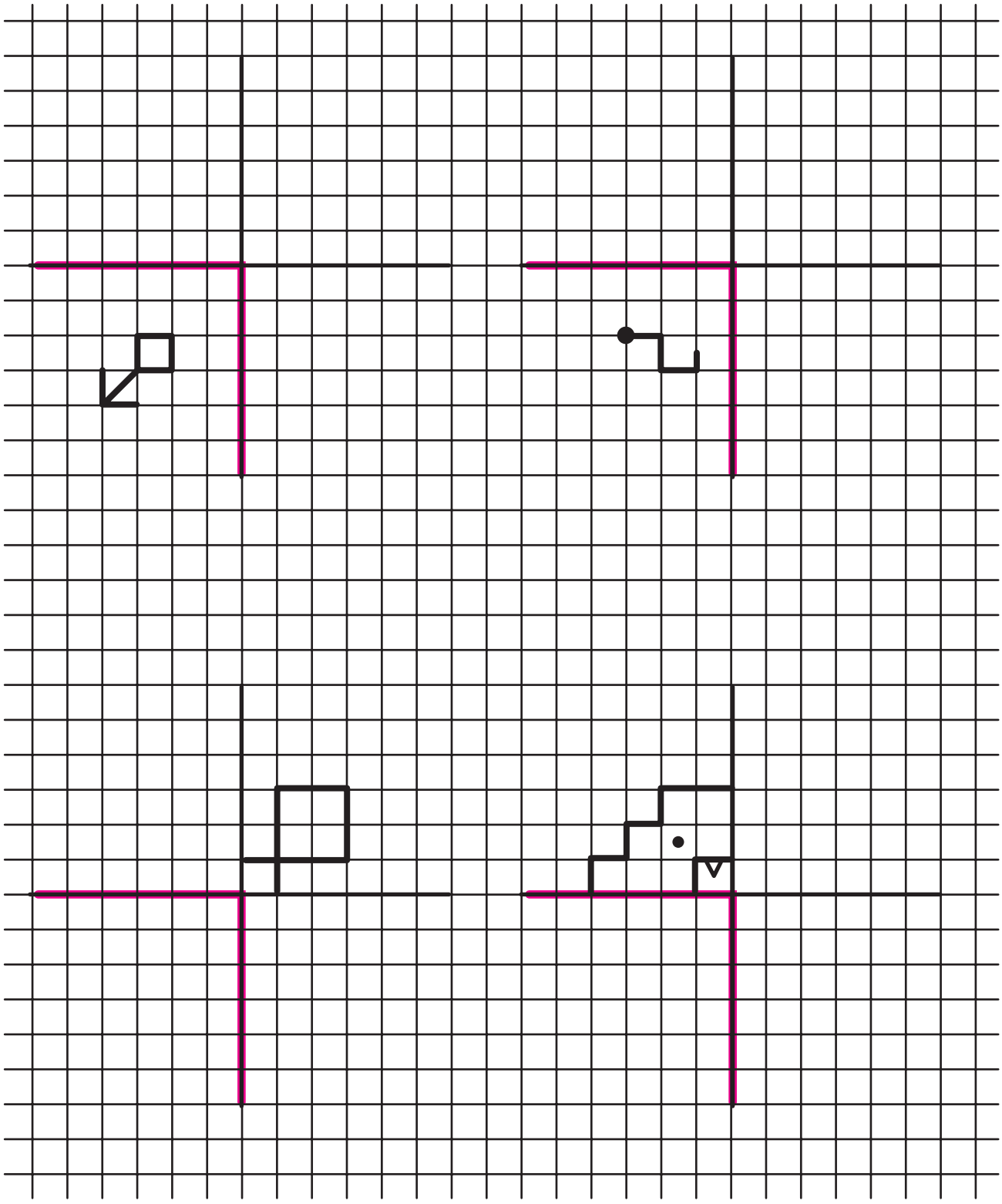
G3



Name _____

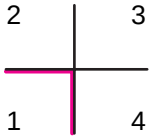
G3 *

The red lines show where to place the double mirror. Draw the shapes as they would be seen in the other three regions. Use a double mirror to check your work.



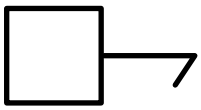
Name _____

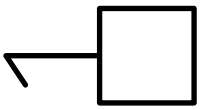
G3 **



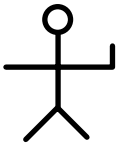
This is the shape in region 1.

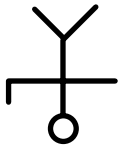
In which region is this image?



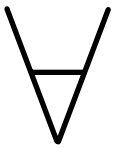


Region _____

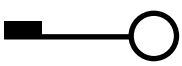


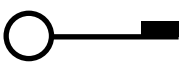


Region _____

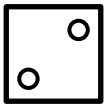


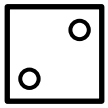
Region _____



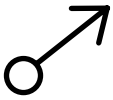


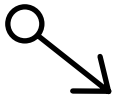
Region _____





Region _____





Region _____

Name _____

G3 ***

Complete this table to show the image that would be seen in each region.

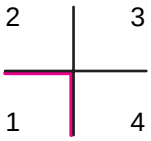
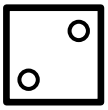
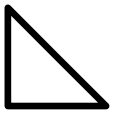
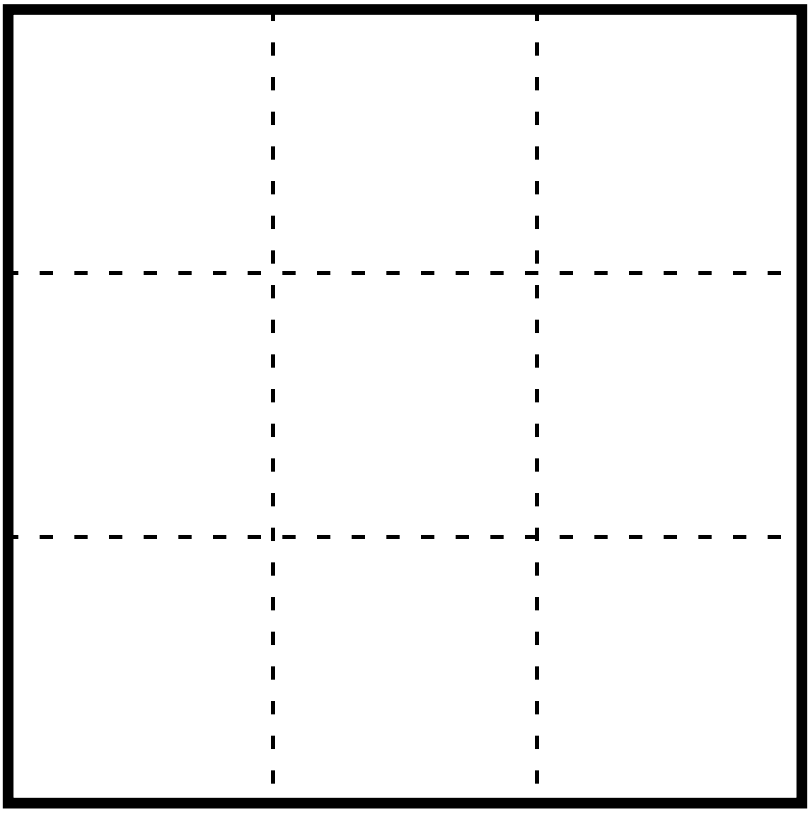


Image in Region 1	Image in Region 2	Image in Region 3	Image in Region 4
			
			

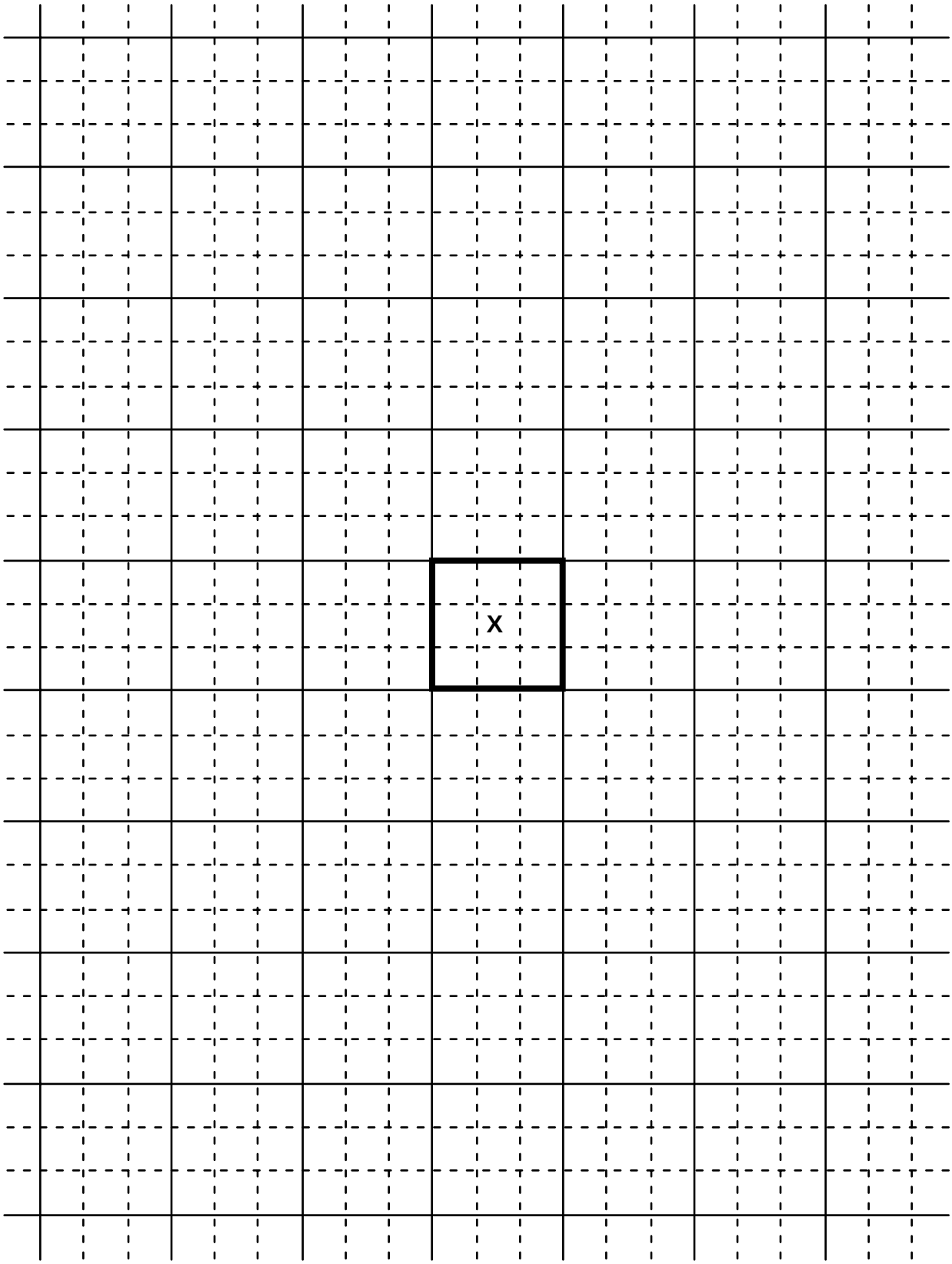
Name _____

G4(a)



Name _____

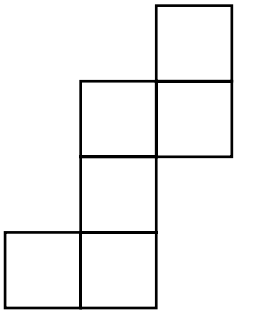
G4(b)

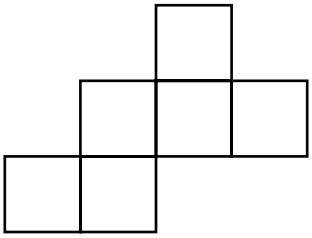


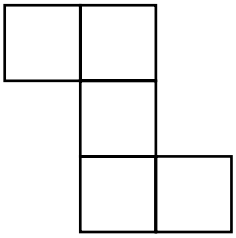
Name _____

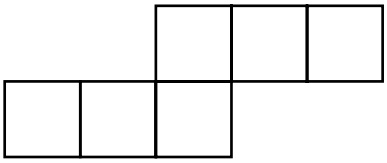
G6(a)

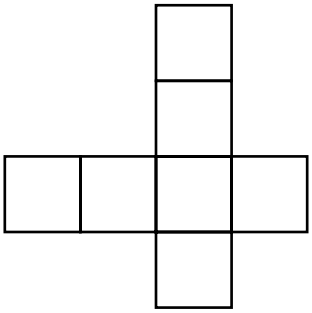
Circle the configurations that are maps of a cube. Cross out those that are not maps of a cube.

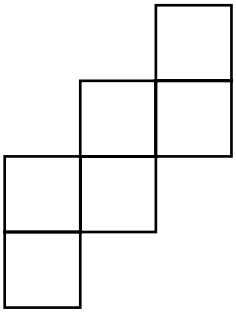


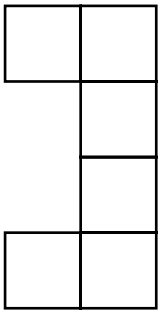


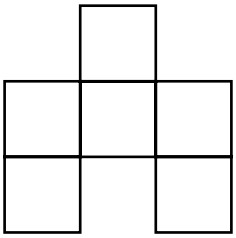


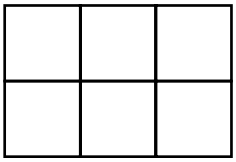


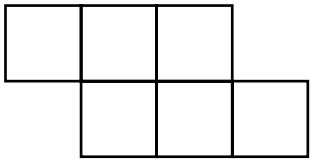


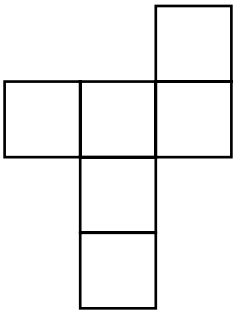


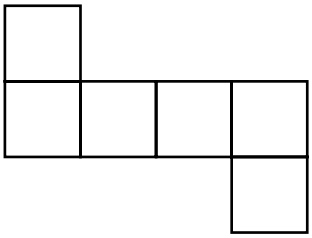








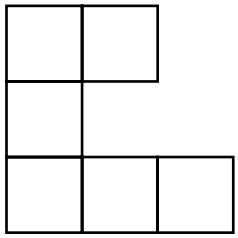


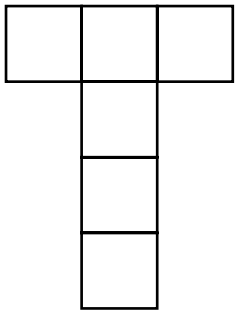


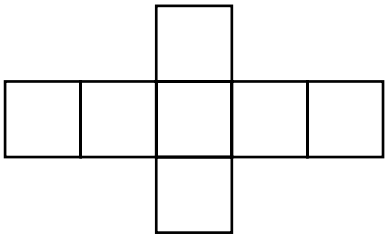
Name _____

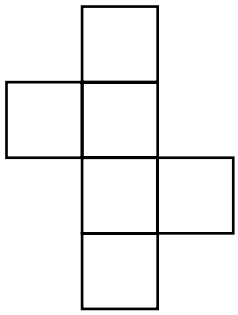
G6(b)

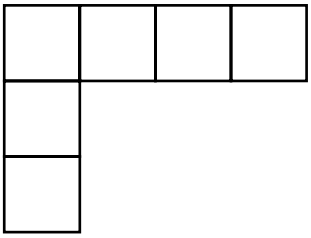
Circle the configurations that are maps of a cube. Cross out those that are not maps of a cube.

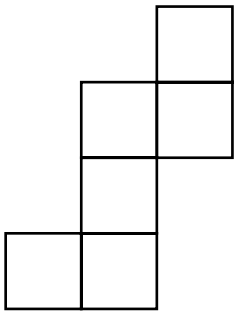


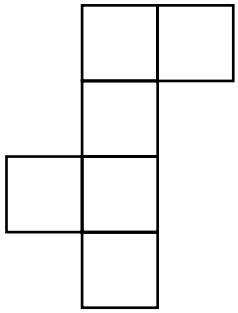


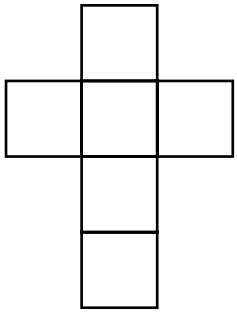


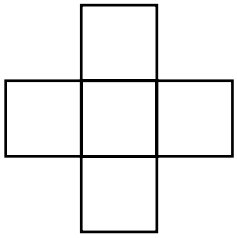


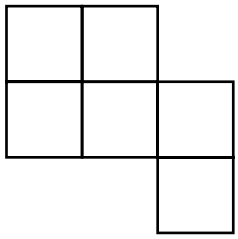


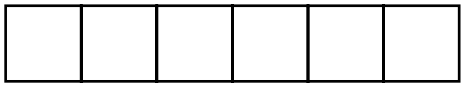


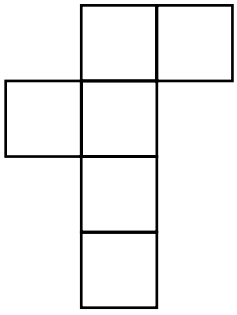








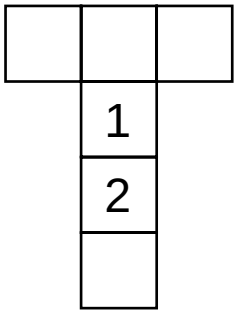


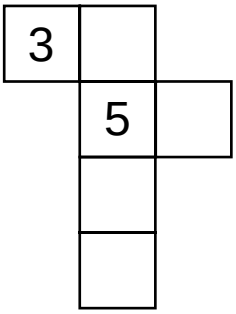


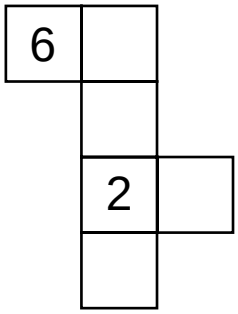
Name _____

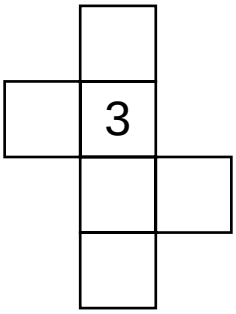
G6 *

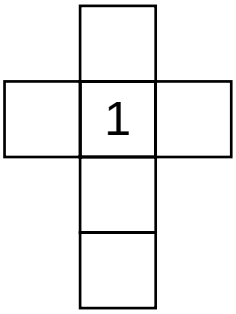
Complete the labeling of each map to make a map of a die.

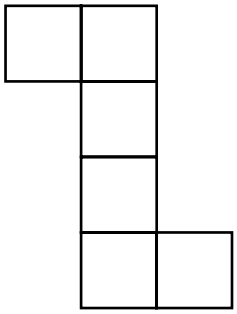


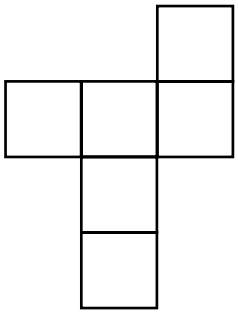


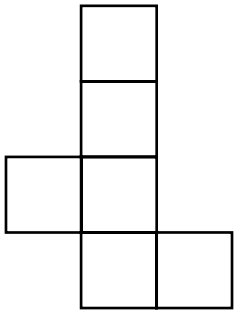








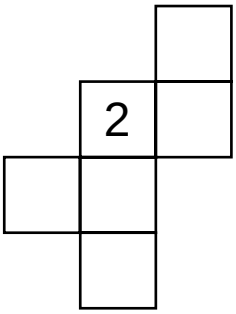


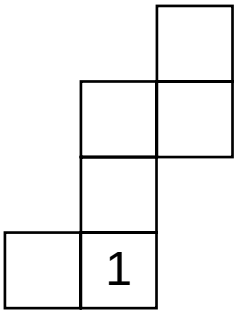


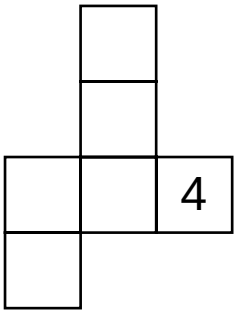
Name _____

G6 **

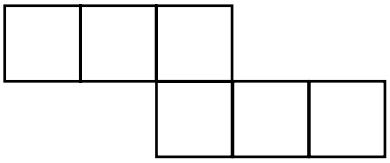
Complete the labeling of each map to make a map of a die.

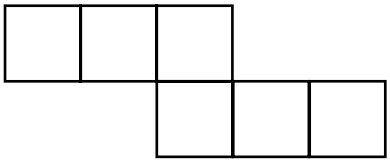






These maps are the same. Label them differently so that both are maps of a die.

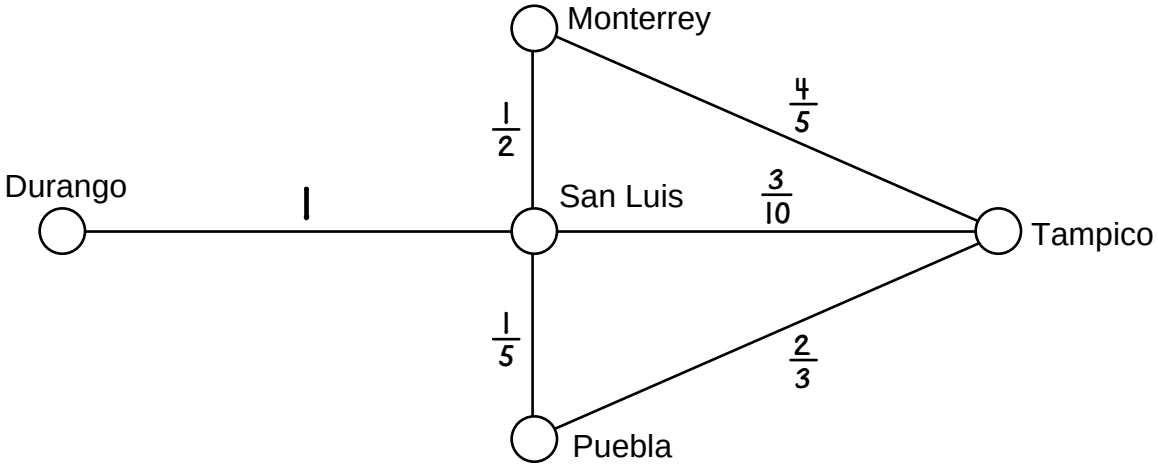




Name _____

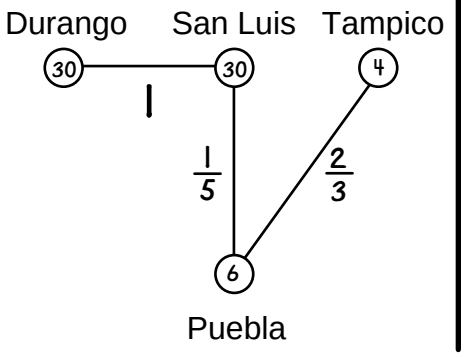
P4 *

This is a map of routes from Durango to Tampico. The numbers on each road give the possibility a traveler will survive one passage along the road.

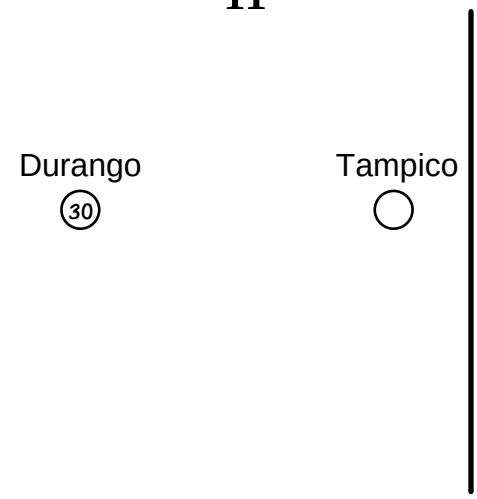


There are three routes conquistadors can take from Durango to Tampico. One route (I) is shown below; draw the other two routes (II and III).

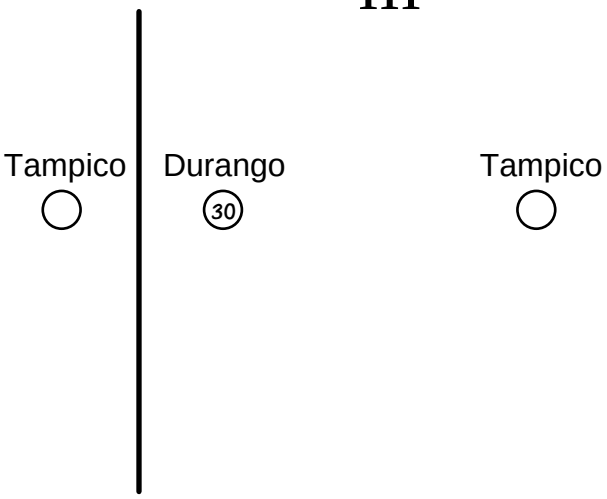
I



II



III



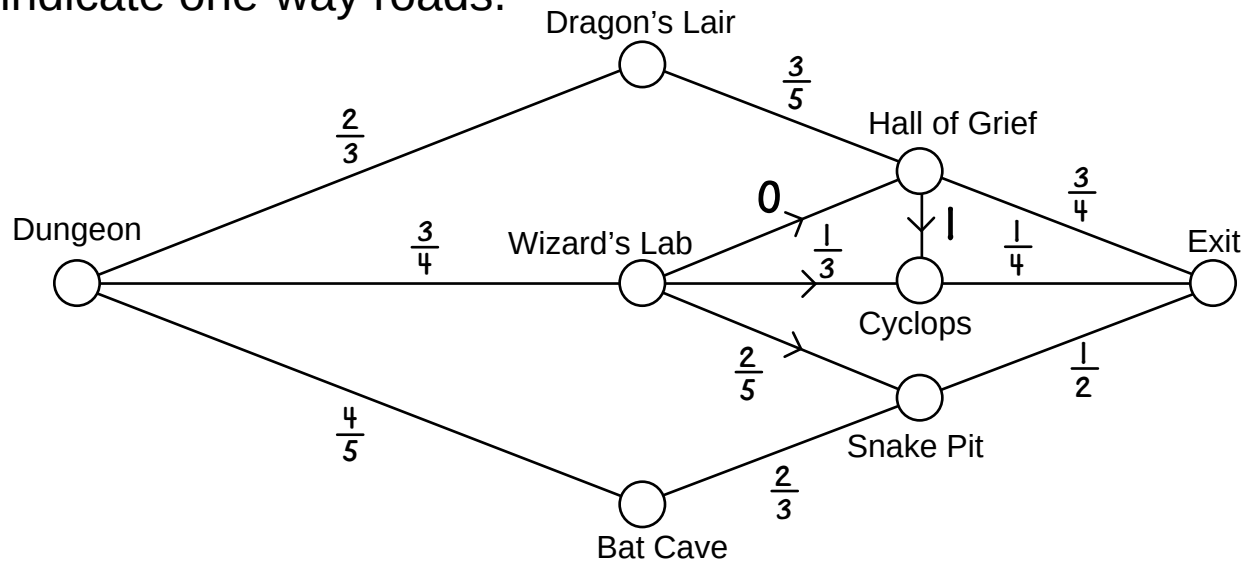
30 conquistadors start from Durango. For each route, calculate how many you would expect to arrive in Tampico. One is done for you.

Which route is safest? _____

Name _____

P4 **

This is a map of routes from a Dungeon to an Exit. The arrows indicate one-way roads.



Draw each route an adventurer could take from the Dungeon to the Exit. Do not include routes that have roads that should definitely be avoided. There are six or fewer good routes.

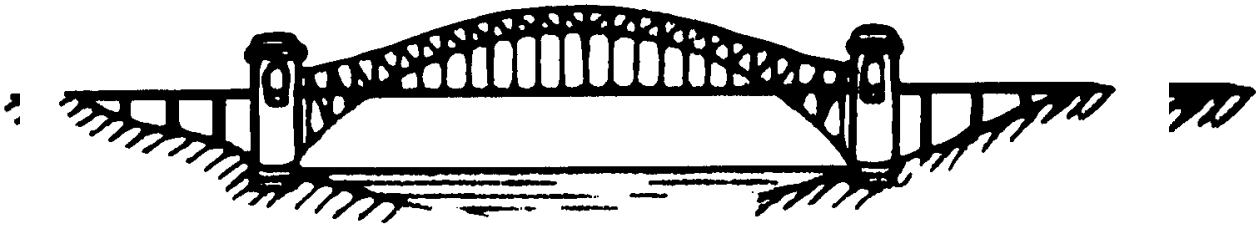
I	II	III
Dungeon (60) Exit ○	Dungeon (60) Exit ○	Dungeon (60) Exit ○
IV	**V**	**VI**
Dungeon (60) Exit ○	Dungeon (60) Exit ○	Dungeon (60) Exit ○

60 warriors start from the Dungeon. For each route, calculate the number that you would expect to survive.
Which route is the safest? _____

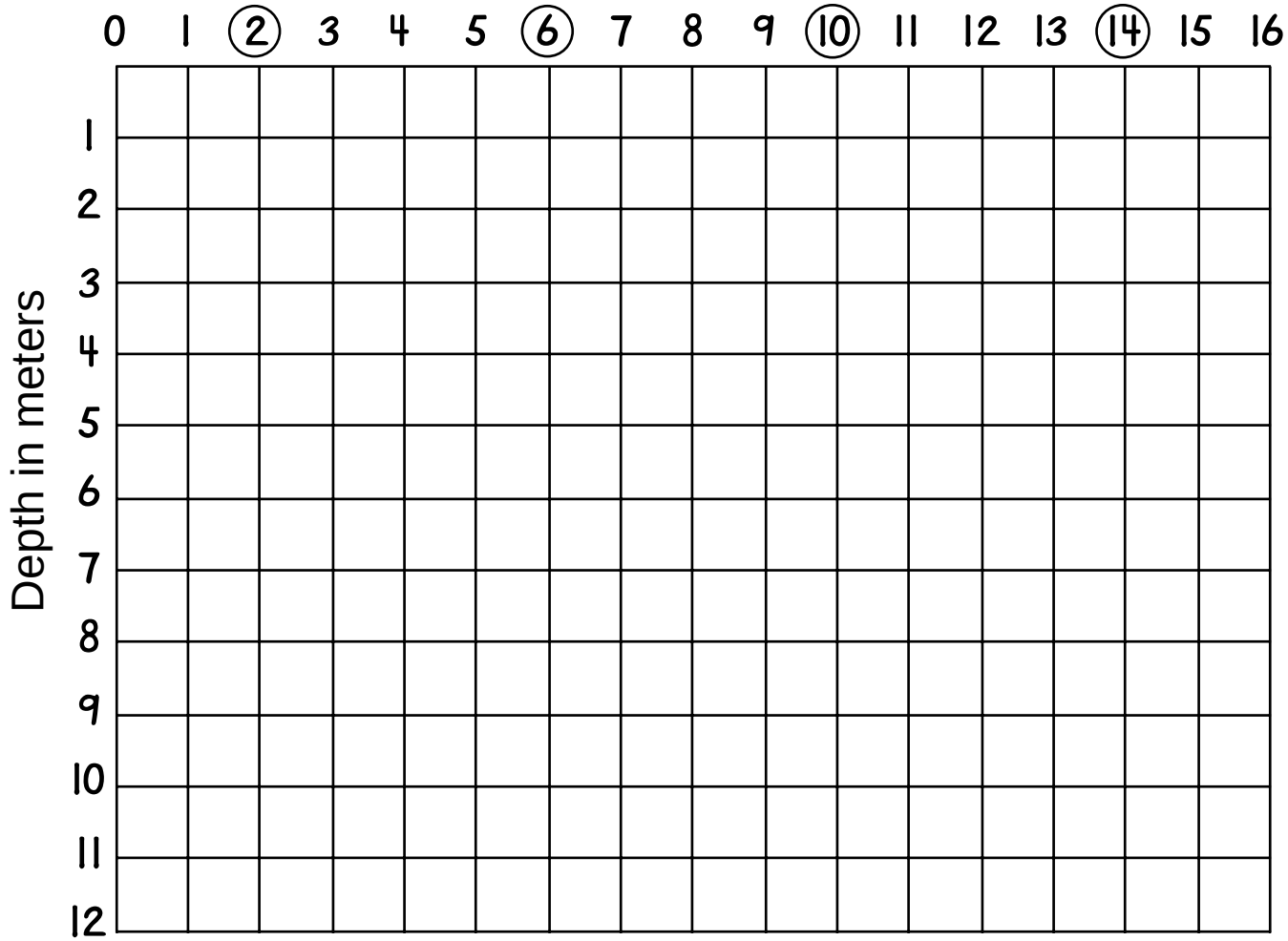
Name _____

P5(a)

Measurements of the depth of the water below a bridge are taken at 2, 6, 10, and 14 meters from the lake shore. The mean average depth is 2 meters. Draw a possible profile of the lake below the bridge.



Distance from the shore in meters



Name _____

P5(b)

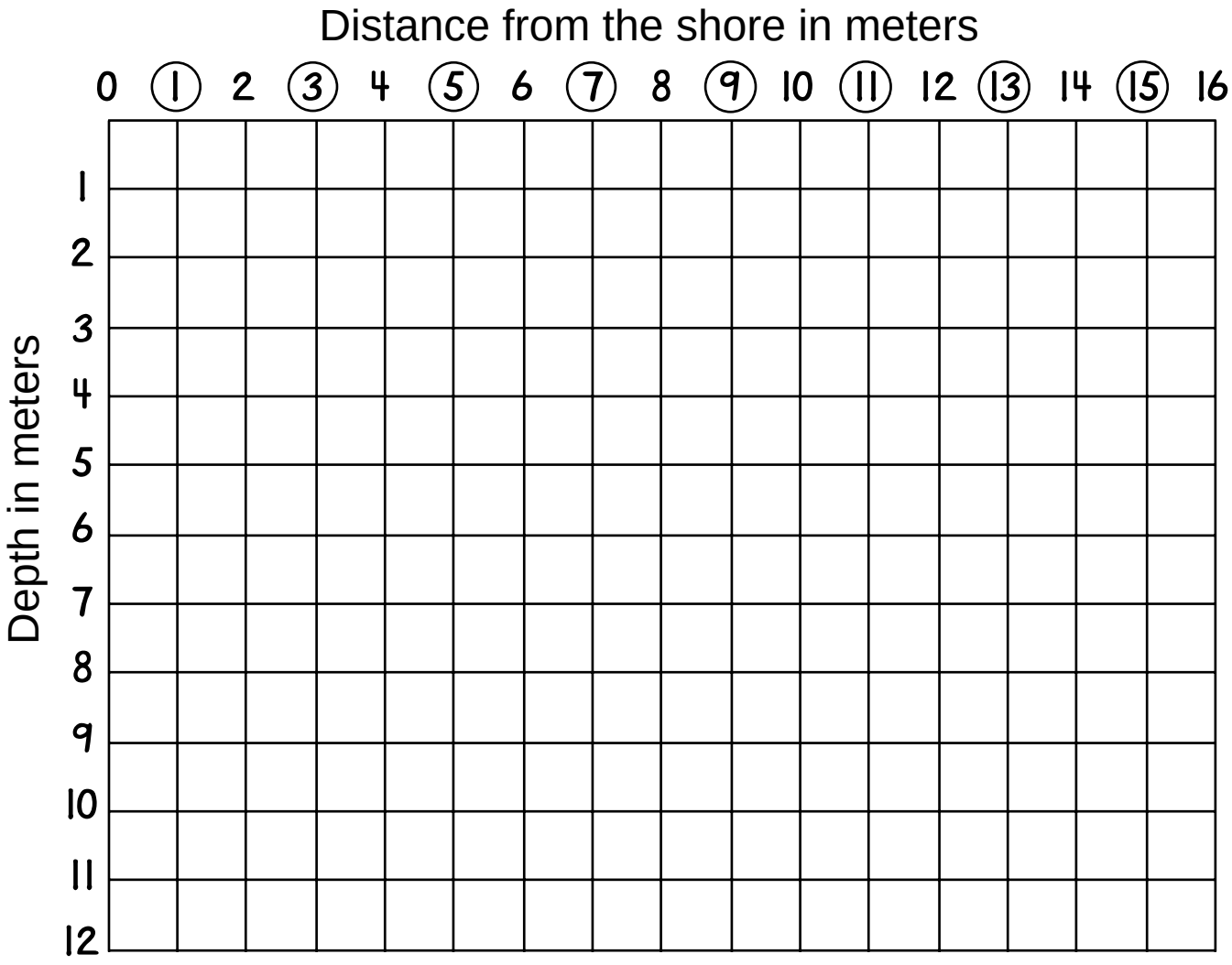
This is the data the park ranger provided for the depth of the water below the bridge.

8 measurements
Mean: 2 meters
Mode: 1 meter
Range: 1 to 8 meters

What could the eight measurements have been?

____m, ____m, ____m, ____m, ____m, ____m, ____m, ____m

Measurements were taken at 1, 3, 5, 7, 9, 11, 13, and 15 meters from the lake shore. Based on the eight measurements you listed, draw a profile of the lake below the bridge.

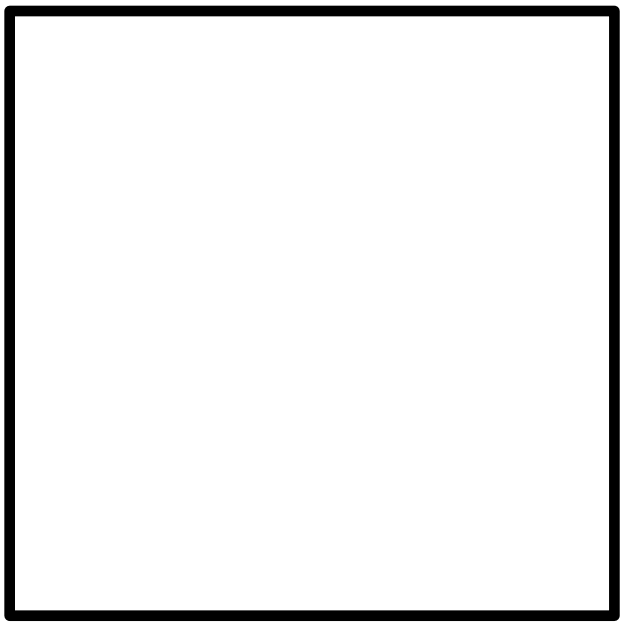


Name _____ P7

Rita: 9 Bruce: 8

Rita leads Bruce 9-8 in a game to 10 points when they must stop playing. Use this square to calculate each player's probability of winning.

9 – 8



What is Rita's probability of winning? _____ Bruce's _____

If Rita and Bruce each put 50¢ into a pot, how should they share the $1.00 when the game stops at 9-8? Rita _____ Bruce _____

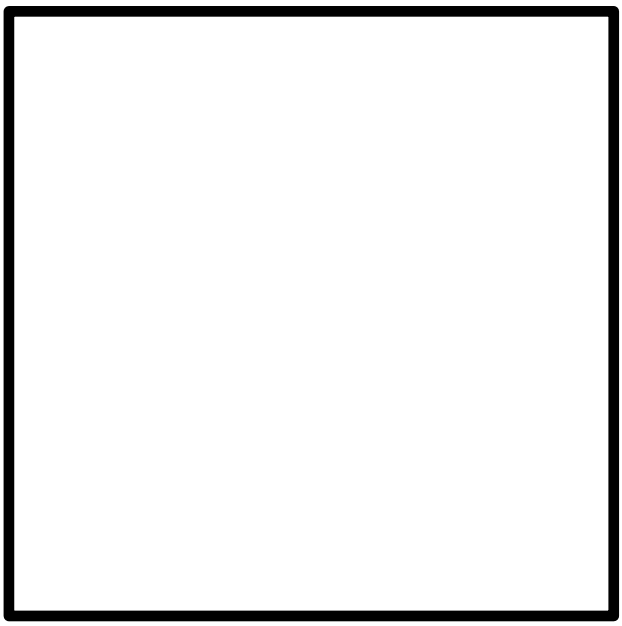
Name _____

P8 *

Rita: 9 Bruce: 9

Rita and Bruce are tied in a game to 10 points when they must stop playing. Use this square to calculate each player's probability of winning.

9 – 9



What is Rita's probability of winning? _____ Bruce's _____

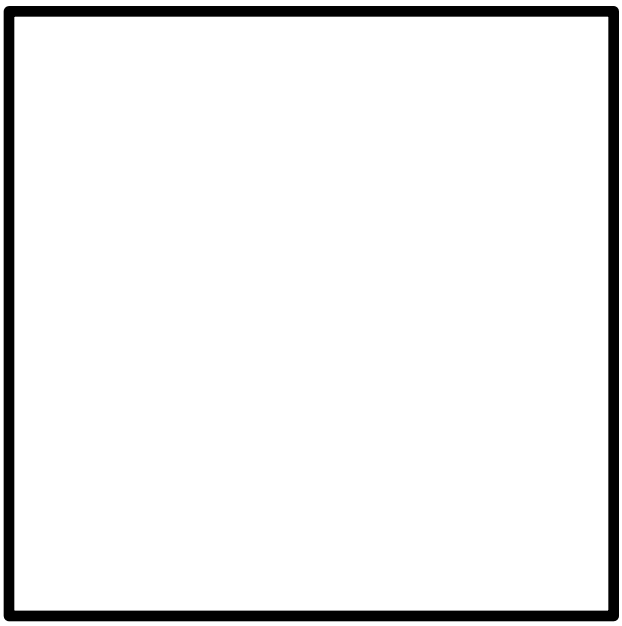
Name _____

P8 **

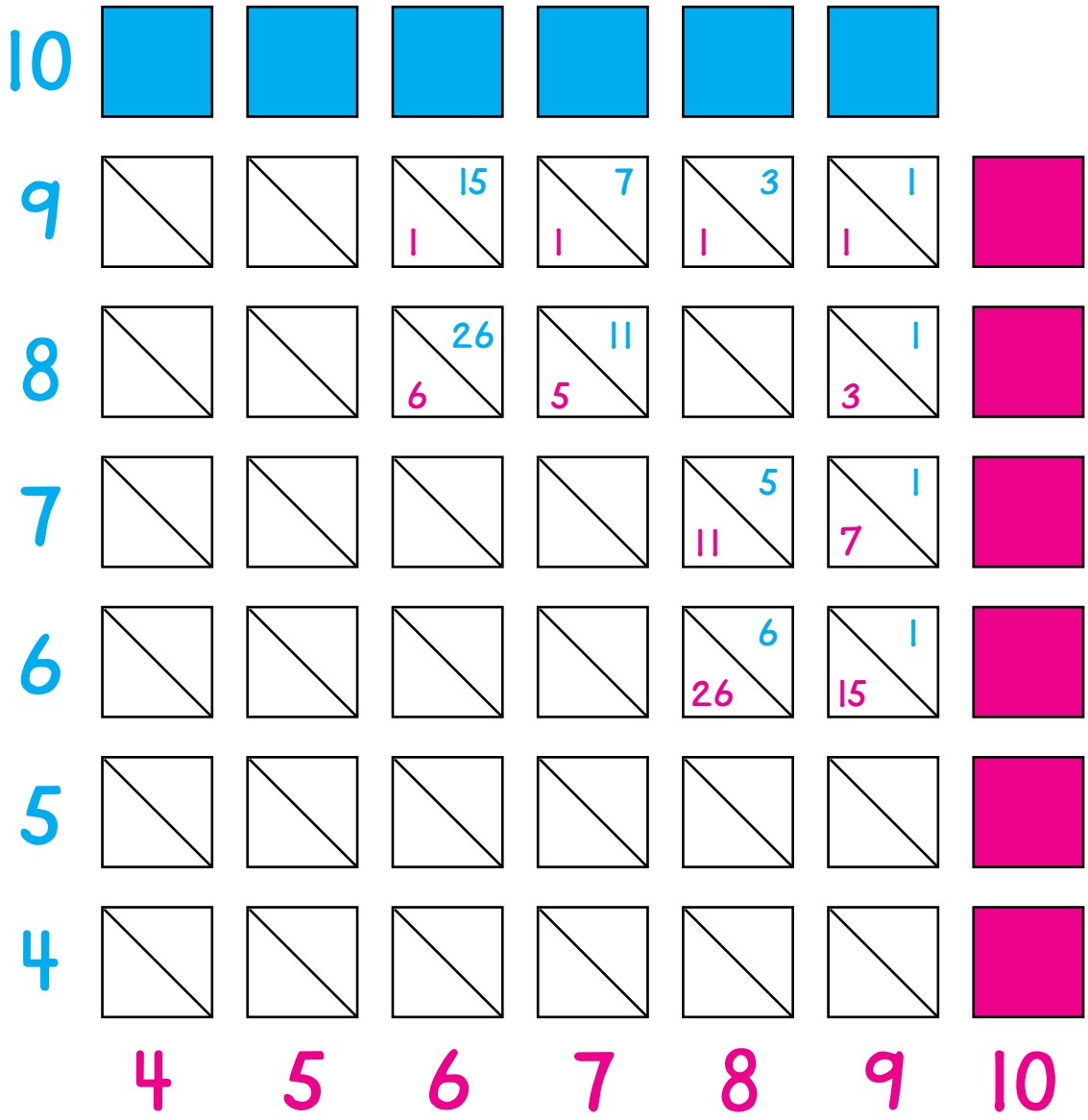
Rita: 9 Bruce: 6

Rita leads Bruce 9-6 in a game to 10 points when they must stop playing. Use this square to calculate each player's probability of winning.

9 – 6



What is Rita's probability of winning? _____ Bruce's _____

Name _____

P9