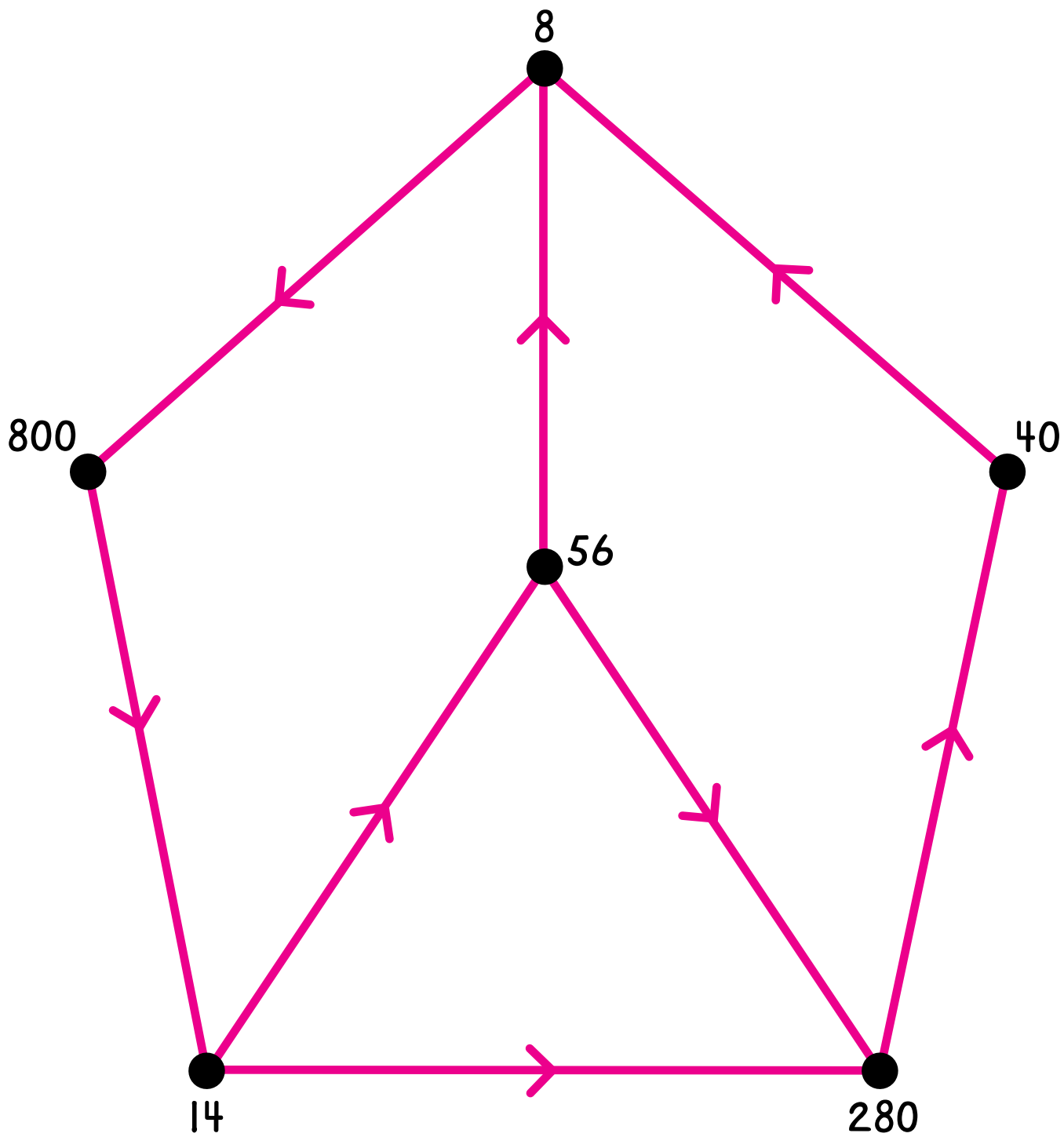


Name _____

Collage of Problems #1

Label the red arrows; try to label some arrows in two ways.



Build an arrow road from 9 to 119. Each arrow must be for $+$, $-$, \times , or \div a one-digit whole number. Use as few arrows as you can.

9

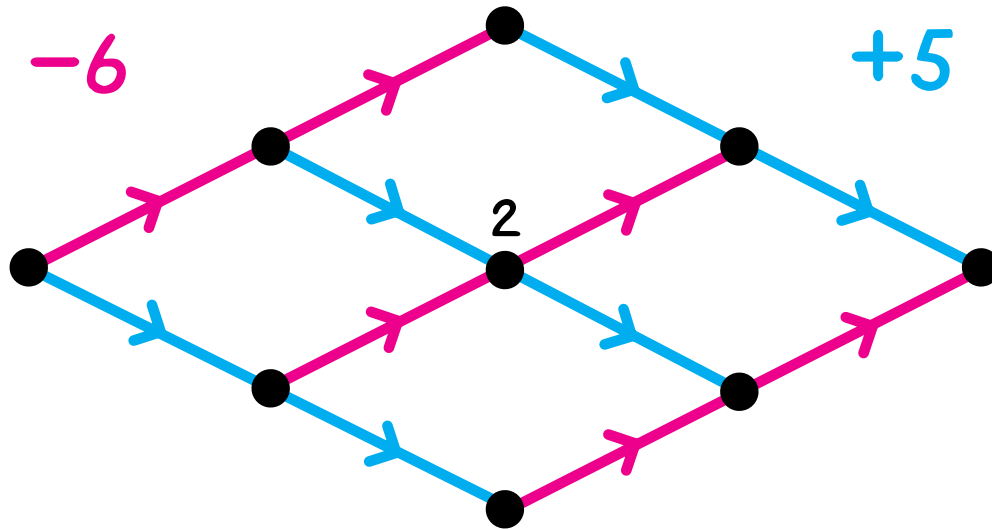


119

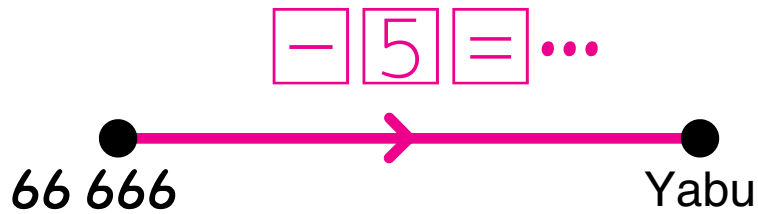
Yabu is a secret number.

Clue 1

Yabu is in this arrow picture.

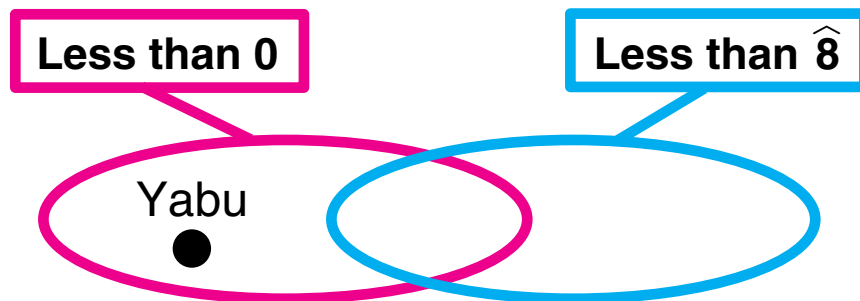


Clue 2



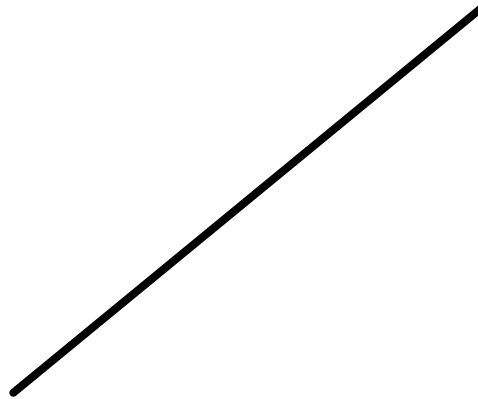
Yabu could be _____, _____, or _____.

Clue 3



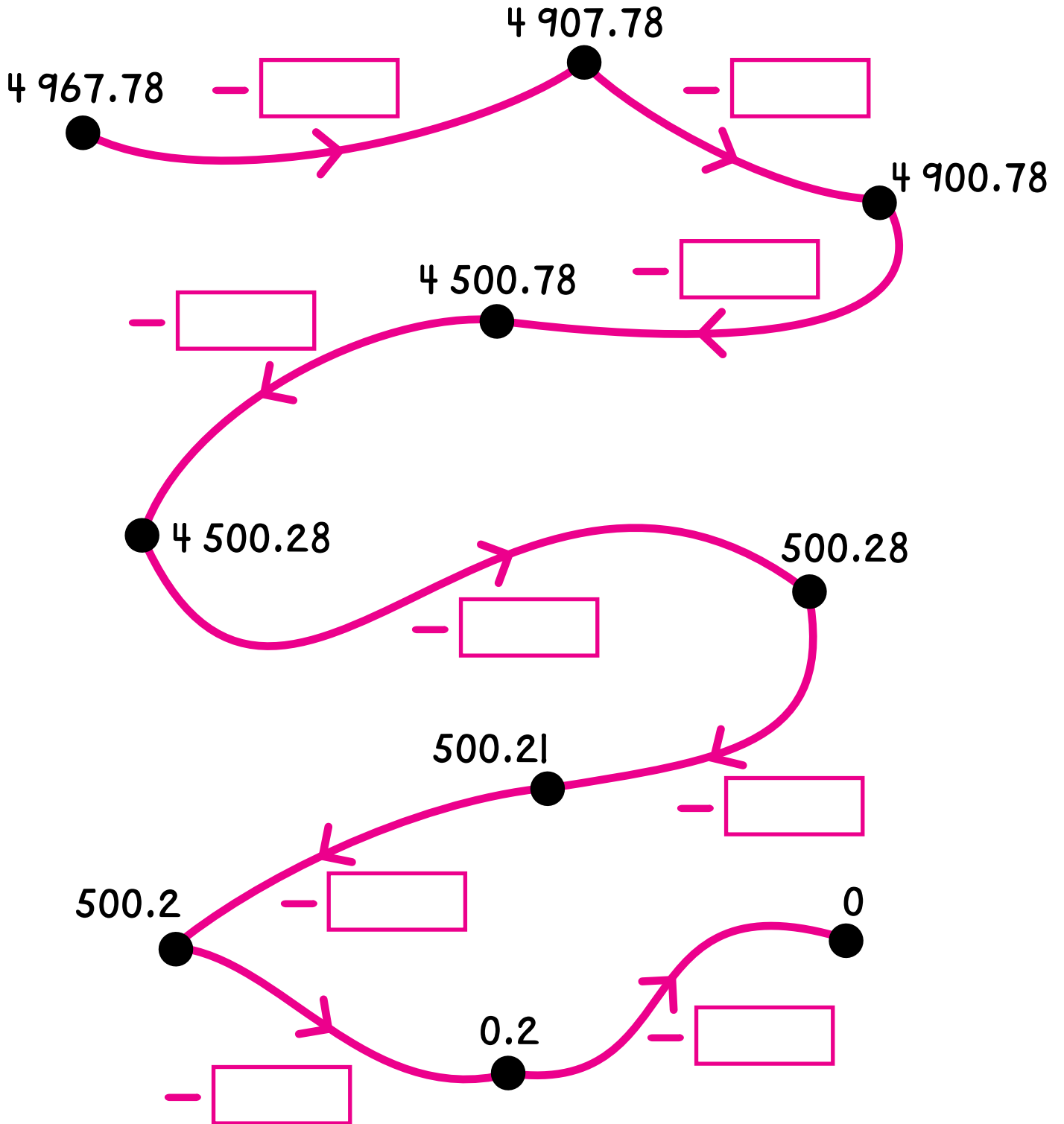
Who is Yabu? _____

Draw a quadrilateral that has the black segment as one side and that has three sides the length of this red segment. You will need a compass.



Wipe-out

Fill in the boxes for the arrows.



Put a one-digit number in each box to make the calculations correct.

$$\begin{array}{r}
 1 \square 9 5 \\
 3 3 \square \\
 + \square 4 8 8 \\
 \hline
 6 2 \square 7
 \end{array}$$

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

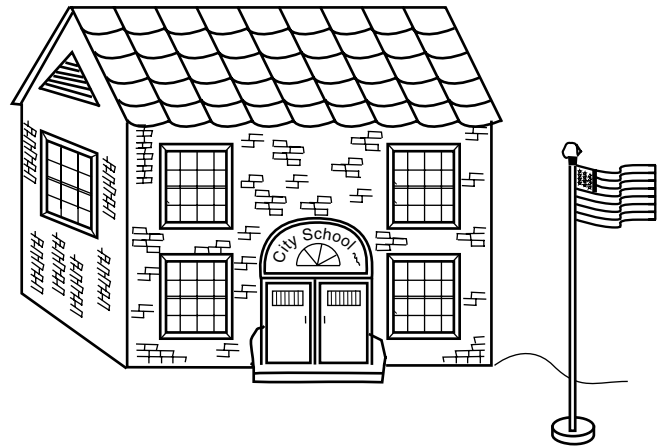
Add.

$$340 + 97 + 16823$$

Subtract.

$$76092 - 1459$$

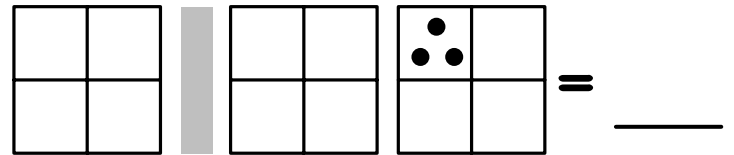
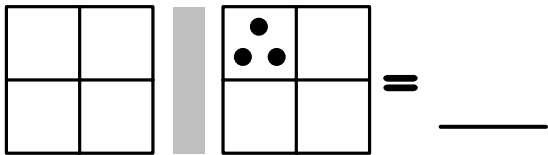
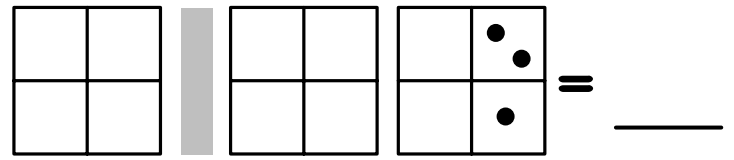
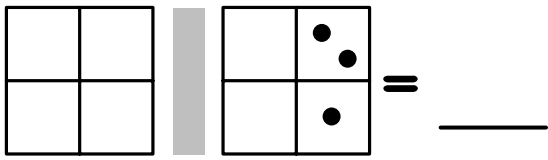
At City School they need 1 teacher for every 25 students.
How many teachers do they need for 275 students? _____



During lunch time at school, they need help from 2 mothers for every 10 kindergarten students. How many mothers do they need for 40 kindergarten students? _____

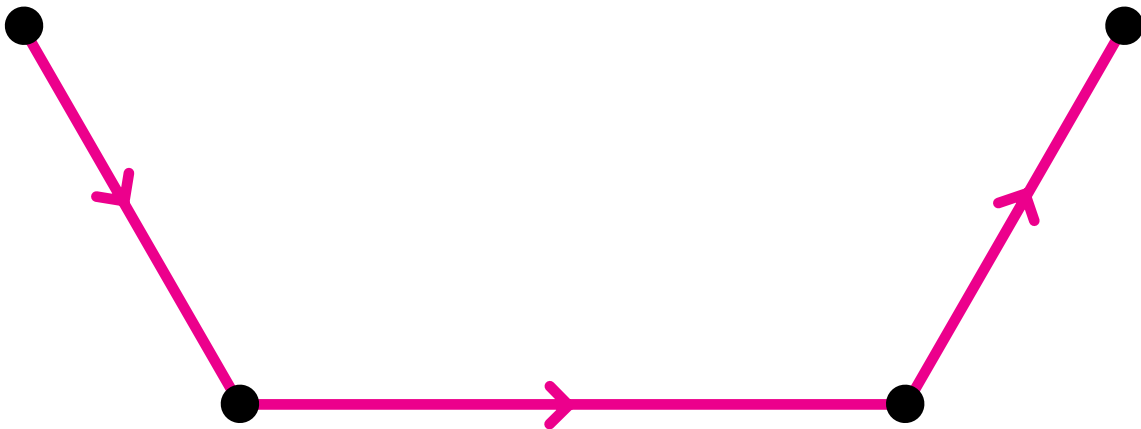


Complete.



Label these dots with the four numbers above.

is less than



Using a ruler, draw a dot for each of these numbers on the number line.

$$\frac{1}{3}$$

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

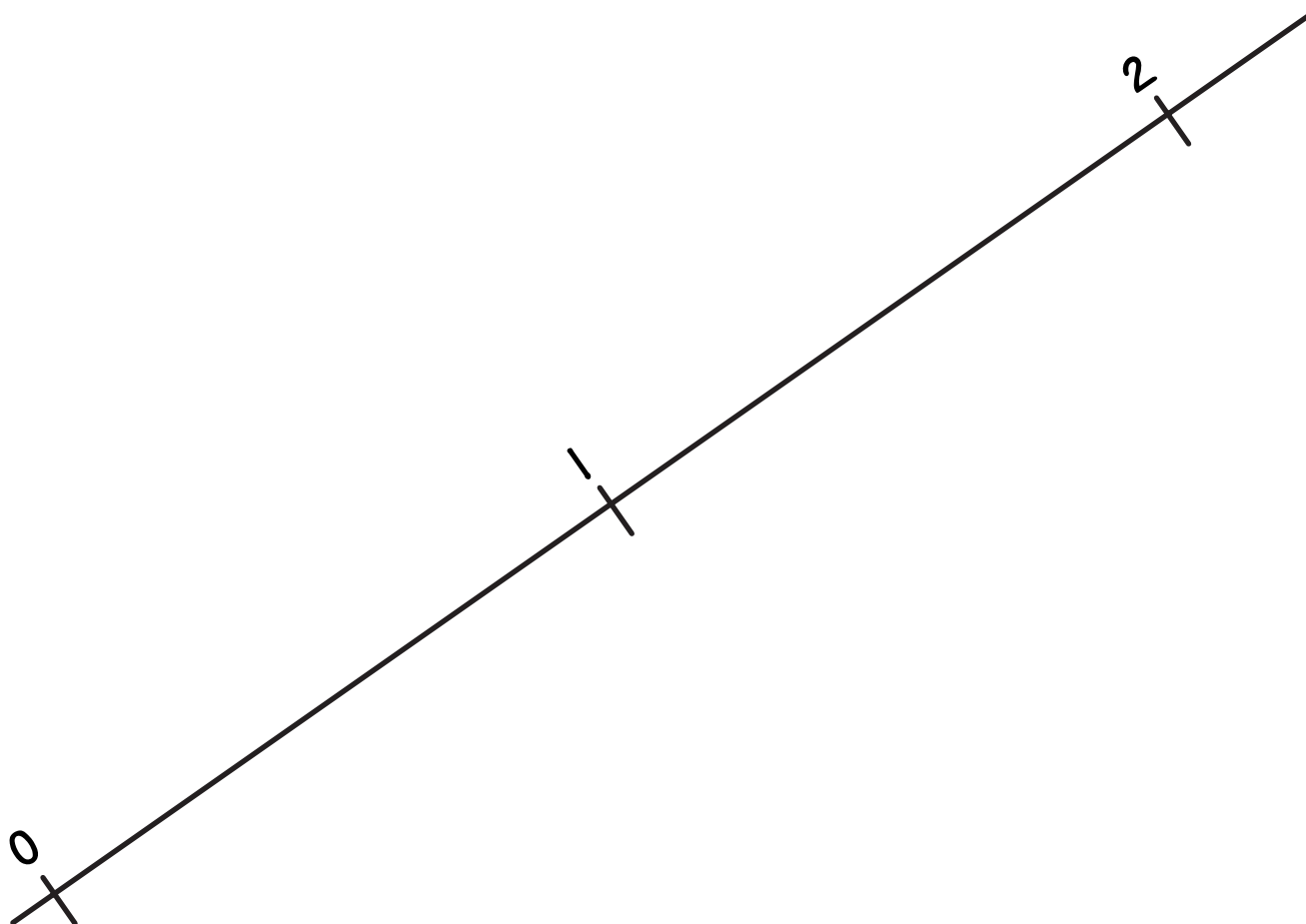
$$\frac{3}{3}$$

$$\frac{4}{3}$$

$$\frac{1}{2}$$

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

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



Put a one-digit number in each box to make the calculations correct.

$$\begin{array}{r}
 \square 6 \square \\
 \times 3 \\
 \hline
 23 \square 4
 \end{array}$$

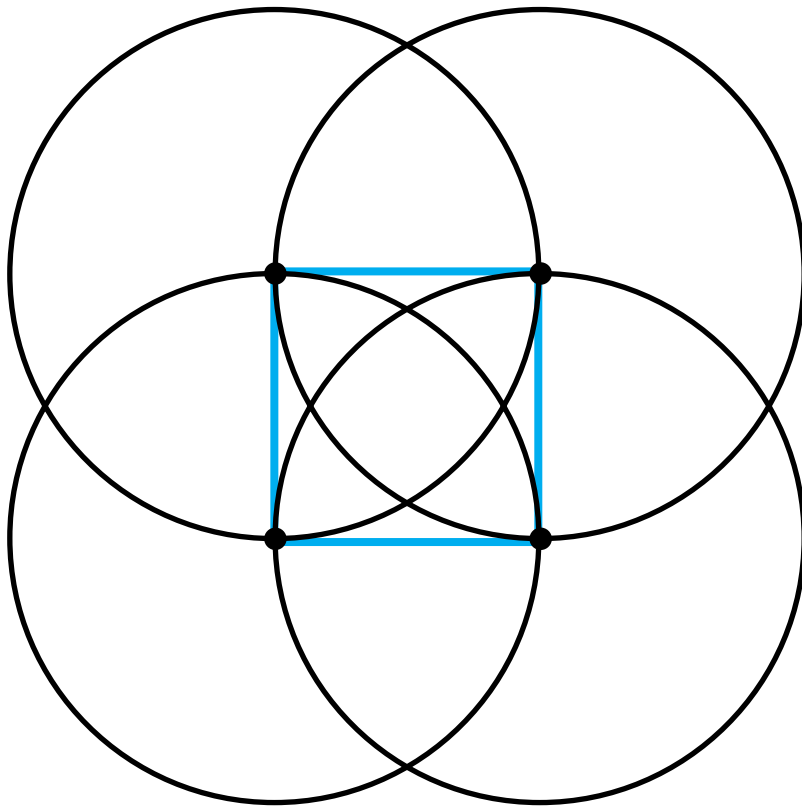
$$\begin{array}{r}
 \square \square \text{ R} = \square \square \\
 43 \overline{) 1137} \\
 \underline{- \square \square 0} \quad \square 0 \\
 \square 7 \square \\
 \underline{- \square 5 \square} \quad \square \\
 \square \square
 \end{array}$$

Multiply.

$$\begin{array}{r}
 84 \\
 \times 47 \\
 \hline
 \end{array}$$

Divide.

$$76 \overline{) 26627}$$



Do not use a ruler to measure in doing these problems.

- 1) The blue segments all have the same length. Draw more blue segments in the picture so that all of the blue segments have the same length.
- 2) Use red to draw another set of line segments in the picture so that all of the red segments have the same length.
- 3) Use green to draw a third set of line segments in the picture so that all of the green segments have the same length.

Complete.

$3 \times 18 = \boxed{}$

$3 \times 1.8 = \boxed{}$

$3 \times 0.18 = \boxed{}$

$8 \times 910 = \boxed{}$

$8 \times 91.0 = \boxed{}$

$8 \times 9.10 = \boxed{}$

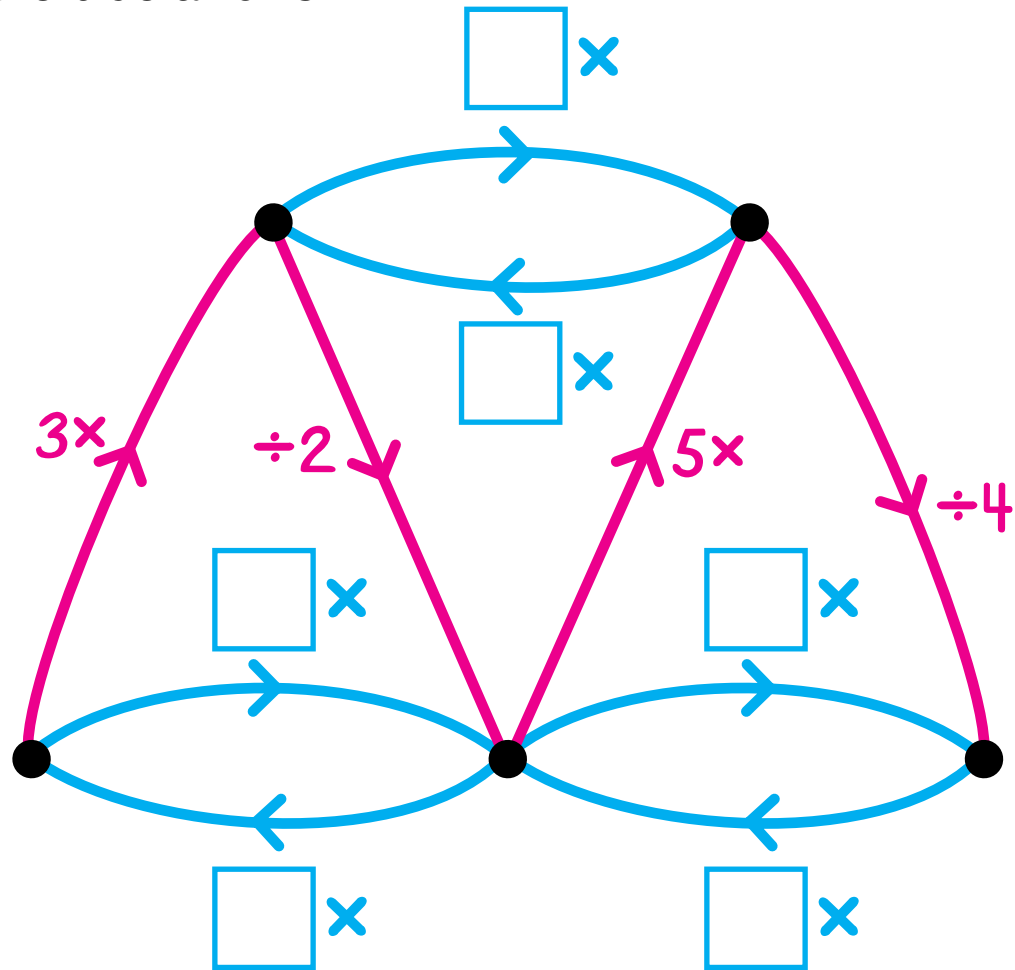
$8 \times 0.910 = \boxed{}$

$7 \times 6 = \boxed{}$

$0.7 \times 6 = \boxed{}$

$0.7 \times 0.6 = \boxed{}$

Label the blue arrows.



Complete these calculations.

$$\frac{3}{2} \times 18 = \underline{\hspace{2cm}}$$

$$\frac{2}{5} \times 30 = \underline{\hspace{2cm}}$$

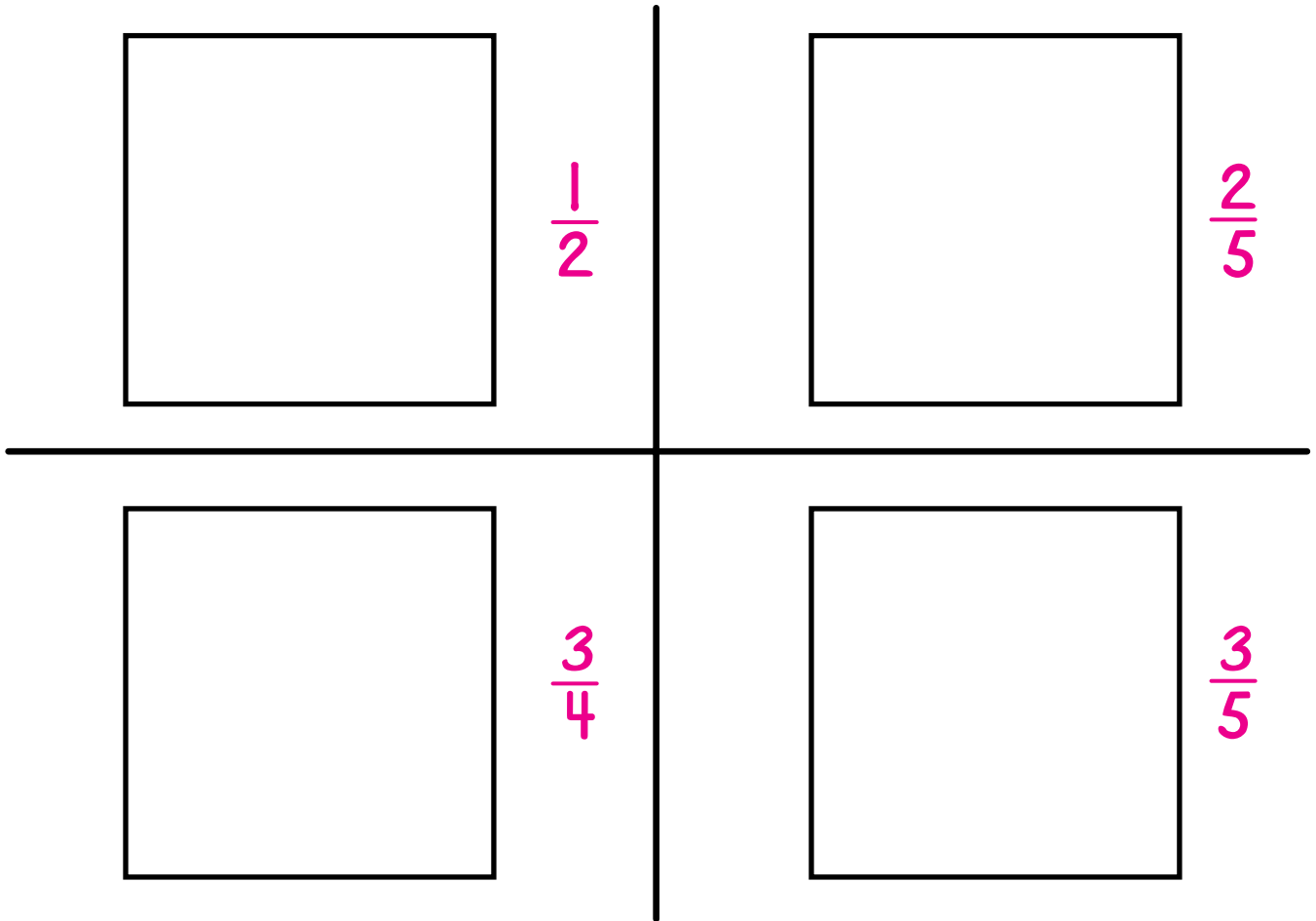
$$\frac{2}{3} \times 18 = \underline{\hspace{2cm}}$$

$$\frac{5}{2} \times 30 = \underline{\hspace{2cm}}$$


$$\frac{5}{4} \times 40 = \underline{\hspace{2cm}}$$

$$\frac{4}{5} \times 40 = \underline{\hspace{2cm}}$$

Color in red the indicated fractional part of each square.
Use a ruler to divide the squares accurately.



Draw all of the possible red arrows between these numbers.

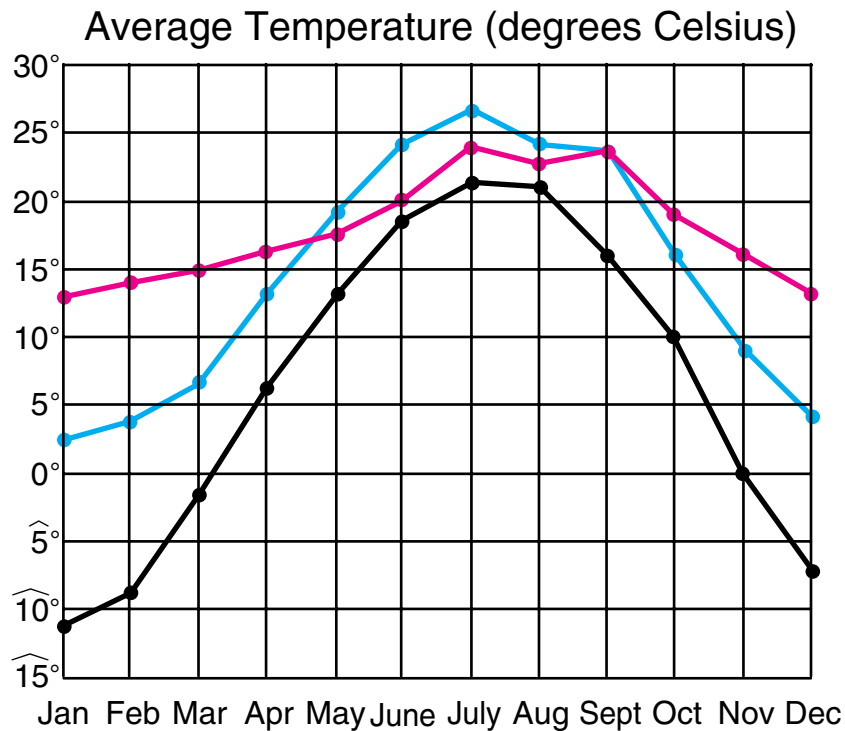
is less than


$\frac{1}{2} \bullet$

$\bullet \frac{2}{5}$

$\frac{3}{4} \bullet$

$\bullet \frac{3}{5}$



Minneapolis

Washington, D.C.

Los Angeles

What is the average February temperature in Minneapolis? _____

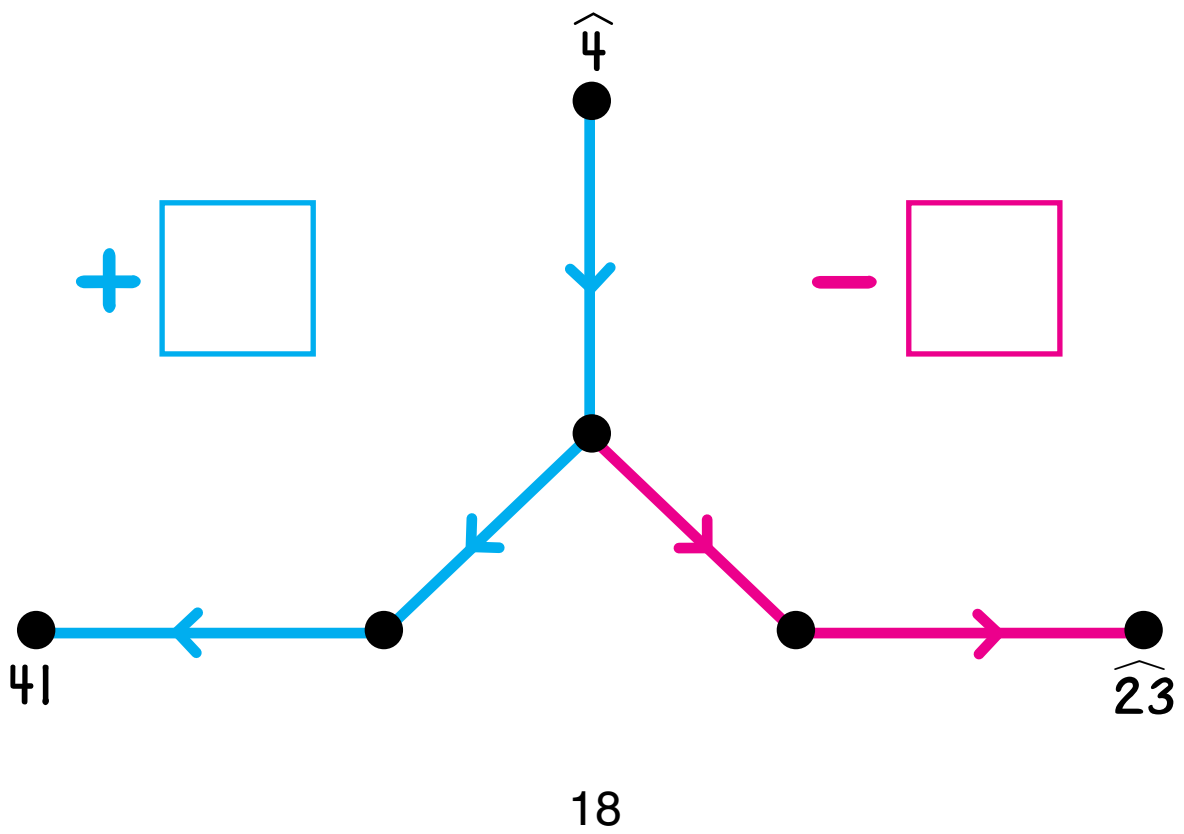
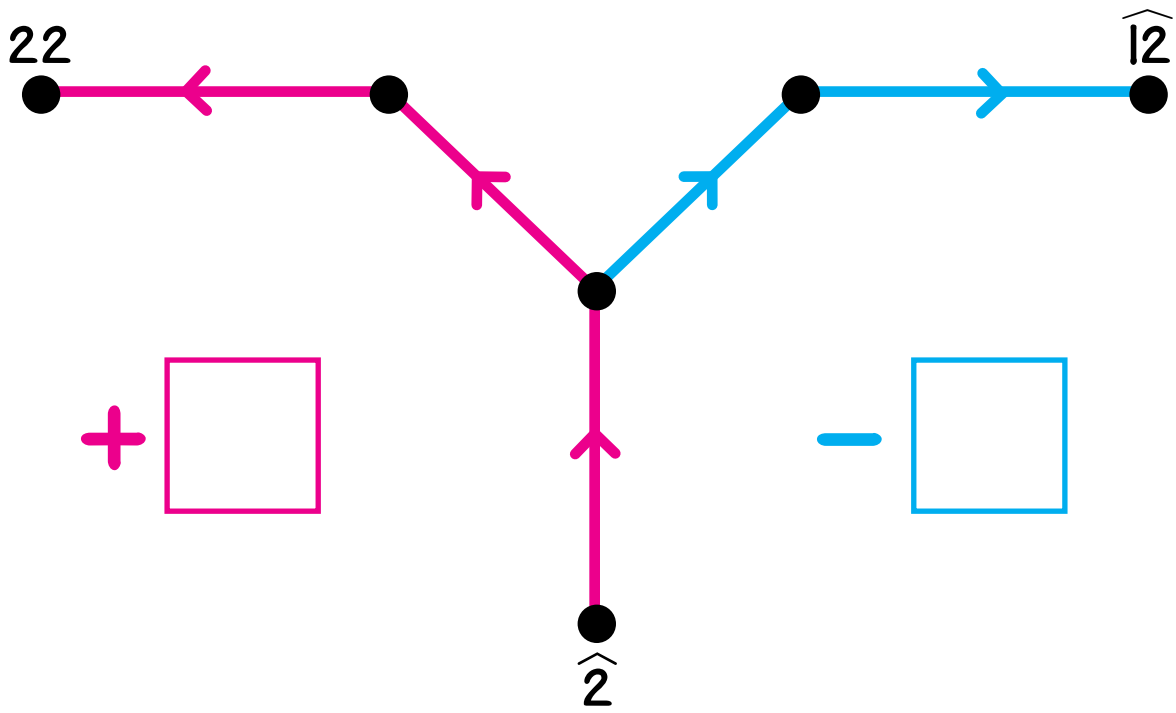
How much colder is Minneapolis than Los Angeles in September? _____
in January? _____

In which month is Minneapolis's average temperature closest to Los Angeles's?
_____ How close? _____

In which months is Washington's average temperature below 10°C?

In which months is Los Angeles at least 10°C warmer than Washington, D.C.?

Fill in the boxes for the arrows. Label the dots.



How Old?

Lillian is 8 years older than Gina. The sum of their ages is 30 years. How old is Lillian? _____ Gina? _____

How Rich?

Andre has exactly ten coins in his pocket. He has only dimes and quarters. If he has \$2.05, how many quarters does he have? _____ dimes? _____

Fill in the boxes.

$$\frac{1}{2} = \frac{7}{14} = \frac{\square}{8} = \frac{3}{\square} = \frac{\square}{10} = \frac{13}{\square}$$

$$\frac{3}{5} = \frac{9}{15} = \frac{\square}{10} = \frac{15}{\square} = \frac{\square}{50} = \frac{21}{\square}$$

Complete. You may use the different names for $\frac{1}{2}$ and $\frac{3}{5}$ at the top of this page.

$$\frac{3}{5} + \frac{1}{2} = \underline{\hspace{2cm}}$$

$$\frac{3}{5} - \frac{1}{2} = \underline{\hspace{2cm}}$$



Scale: 1 cm on the map = 100 kilometers

1. On the map, what is the length of a line segment between El Paso and San Antonio? _____ cm
 What is the actual distance between El Paso and San Antonio? _____ km

2. On the map, what is the length of a line segment between Dallas and Houston? _____ cm
 What is the actual distance between Dallas and Houston? _____ km

3. If an airplane flies 600 kilometers in 1 hour, about how long should the flying time be from El Paso to San Antonio? (Circle the closest answer.)
 50 minutes 1 hour 20 minutes 1 hour 50 minutes

4. If an airplane flies 400 kilometers in 1 hour, about how long should the flying time be from Dallas to Houston? (Circle the closest answer.)
 50 minutes 1 hour 10 minutes 1 hour 30 minutes

27 810

27 810 is divisible by which of these numbers? Circle your answers

1

9

4

3

6

8

1 010

1 010 is divisible by which of these numbers? Circle your answers

2

3

5

10

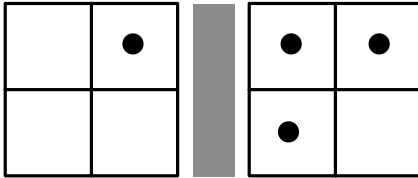
4

6

Dano is a secret number.

Clue 1

Dano can be put on this Minicomputer by adding just a ②-checker.



Dano could be _____, _____, _____, _____, _____, _____, _____, or _____.

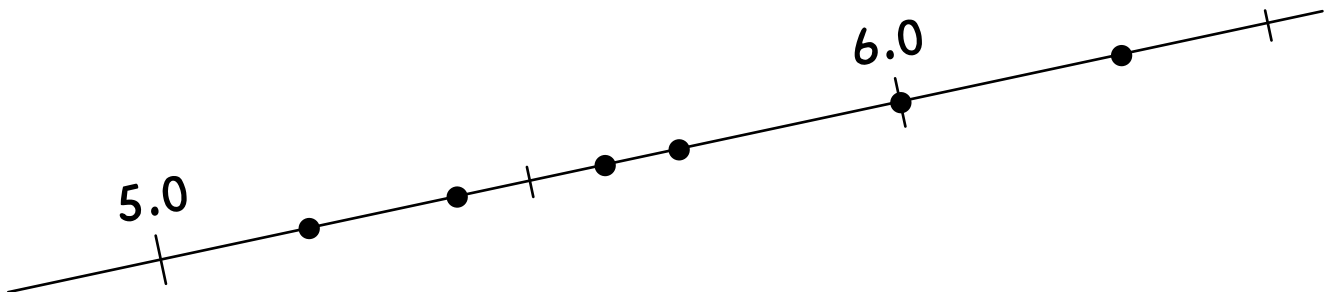
Clue 2



Dano could be _____, _____, _____, or _____.

Clue 3

Dano is one of the dots on this number line.



Who is Dano? _____

A city council must choose a committee of three people from five eligible members: Arlene, Bret, Carla, Dinah, and Ed. The selection is not easy because some members are jealous of others and some have close friendships.

- Arlene will serve on the committee with anyone.
- Bret won't serve on the committee with Arlene.
- Carla will serve on the committee only if Bret and Dinah also serve.
- Dinah won't serve if Arlene or Carla also serve.
- Ed won't serve unless Dinah also serves.

Can you select a committee of three people so that everyone is satisfied?

Who is on your committee? _____, _____, _____

Match each red tag with a blue tag.

$$\frac{7}{5} + \frac{3}{5}$$

$$\frac{1}{2}$$

$$\frac{3}{2} \times \frac{3}{5}$$

$$\frac{4}{5}$$

$$\frac{2}{3} \times \frac{3}{4}$$

$$0.9$$

$$\frac{1}{2} - \frac{1}{6}$$

$$2$$

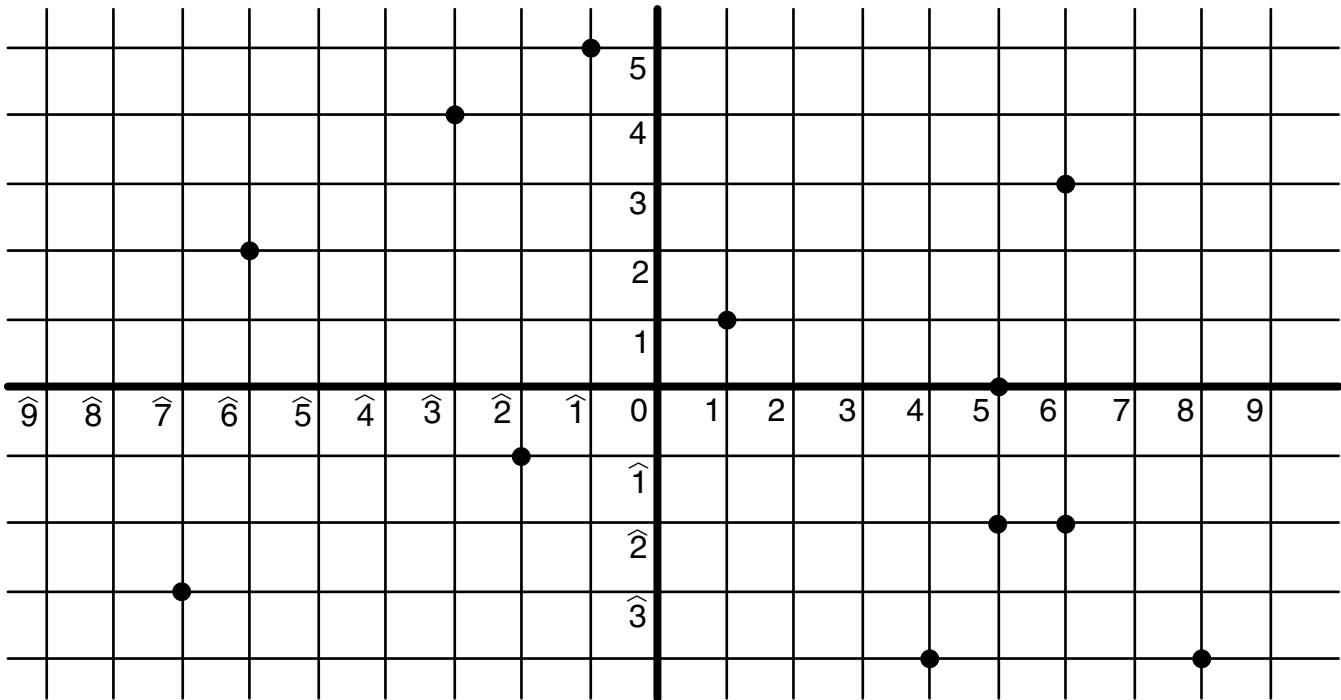
$$1\frac{1}{5} - \frac{2}{5}$$

$$\frac{1}{3}$$

Tim and Tam are secret numbers.

Clue 1

(Tim, Tam) is one of the dots on this grid.

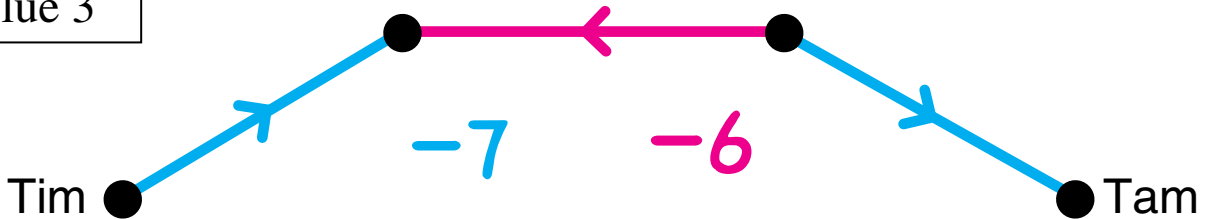


Clue 2

$$\text{Tim} + \text{Tam} > 3$$

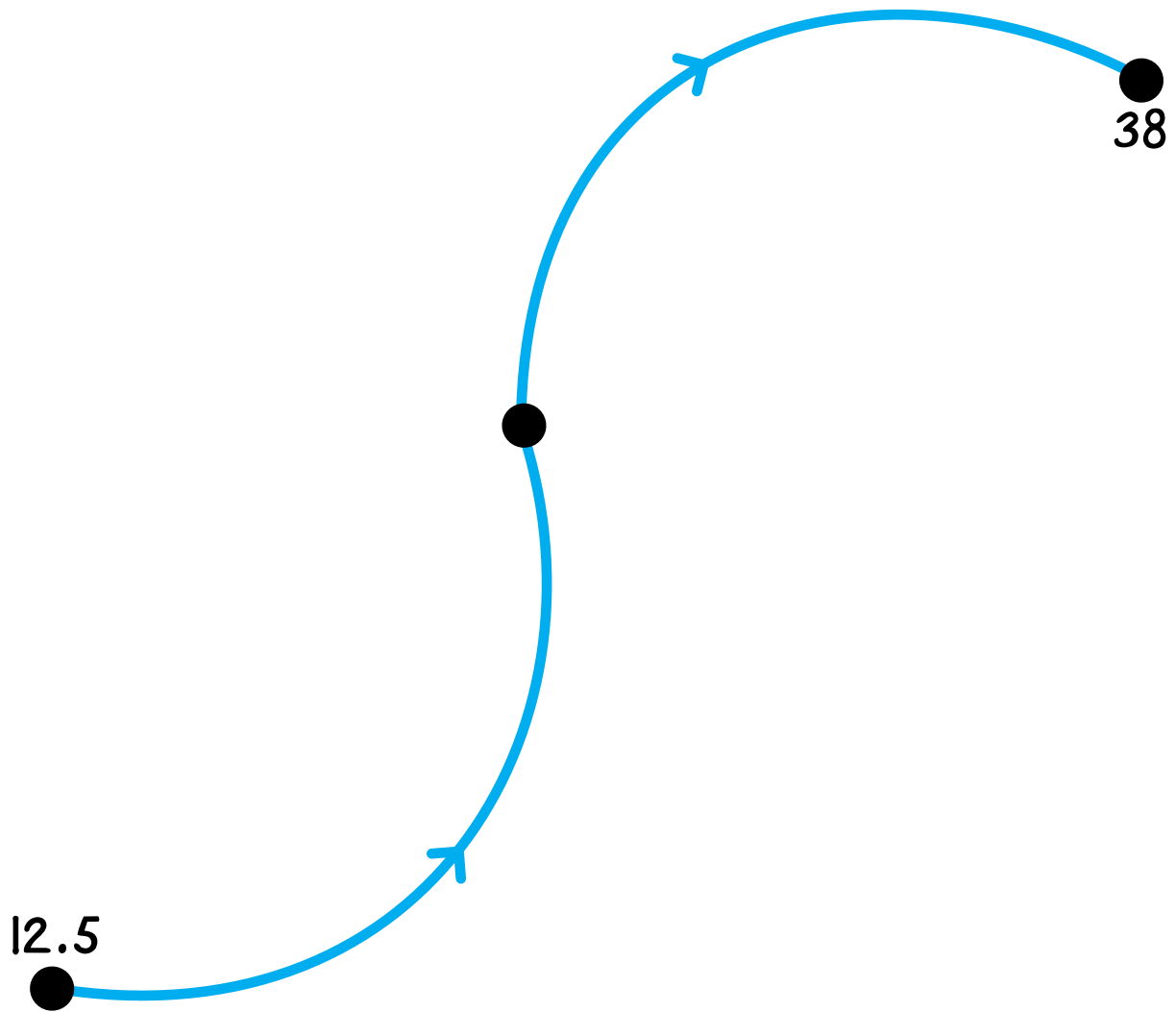
(Tim, Tam) could be (___, ___), (___, ___), (___, ___), (___, ___), or (___, ___).

Clue 3

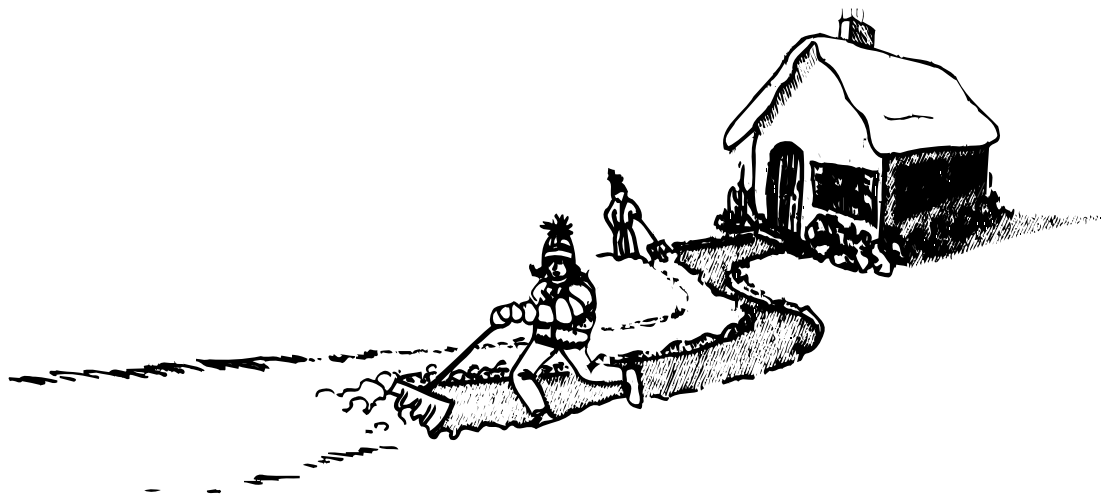


(Tim, Tam) is (___, ___).

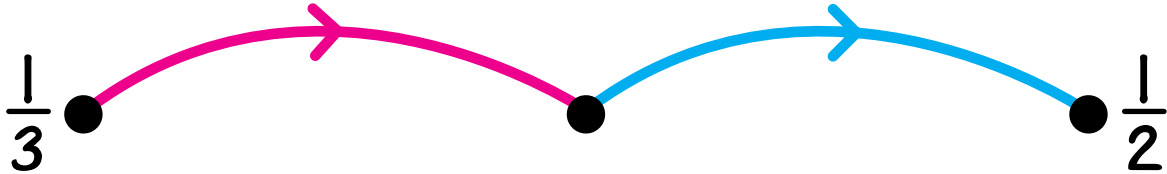
Build a road from 12.5 to 38 with two arrows. Each arrow must be for $+$, $-$, \times , or \div a one-digit whole number.



Amy shovels the sidewalk three times as fast as her little brother. If they clear a sidewalk 16 meters long, what length does Amy clear? _____
What length does her little brother clear? _____



Pair the tags.



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

$$- \frac{1}{6}$$

$$- \frac{1}{4}$$

$$\times \frac{6}{7}$$

$$\times \frac{3}{4}$$

$$\times 6$$

$$\div \frac{1}{2}$$

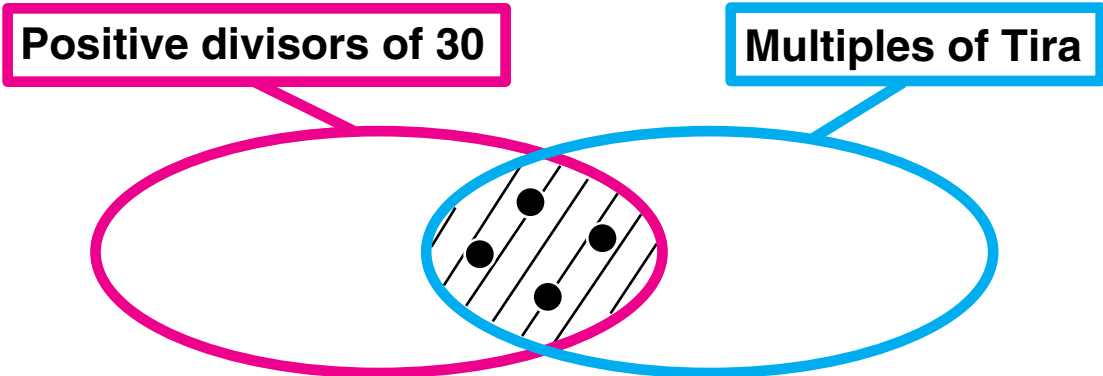
$$\times \frac{3}{10}$$

$$\times 5$$

$$\div \frac{1}{2}$$

Tira is a secret whole number.

Clue 1

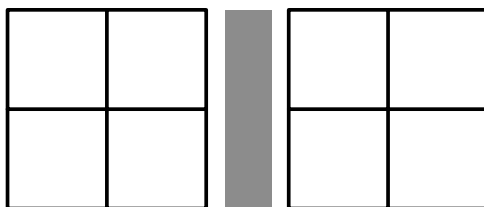


Tira could be _____, _____, or _____.

Clue 2

Tira can be put on this Minicomputer with exactly these two checkers.

② ⑦



Who is Tira? _____

Complete.

$$\begin{aligned} 11^0 &= 1 \\ 11^1 &= \underline{\hspace{2cm}} \\ 11^2 &= \underline{\hspace{2cm}} \\ 11^3 &= \underline{\hspace{2cm}} \\ 11^4 &= \underline{\hspace{2cm}} \\ 11^5 &= \underline{\hspace{2cm}} \\ 11^6 &= \underline{\hspace{2cm}} \\ 11^7 &= \underline{\hspace{2cm}} \end{aligned}$$

Describe patterns you notice.

Complete.

$$\begin{aligned} 1^2 &= 1 \\ 11^2 &= \underline{\hspace{2cm}} \\ 111^2 &= \underline{\hspace{2cm}} \\ 1111^2 &= \underline{\hspace{2cm}} \\ 11111^2 &= \underline{\hspace{2cm}} \end{aligned}$$

Sum of digits

$$\begin{aligned} &1 \\ &\underline{\hspace{2cm}} \\ &\underline{\hspace{2cm}} \\ &\underline{\hspace{2cm}} \\ &\underline{\hspace{2cm}} \end{aligned}$$

Predict.

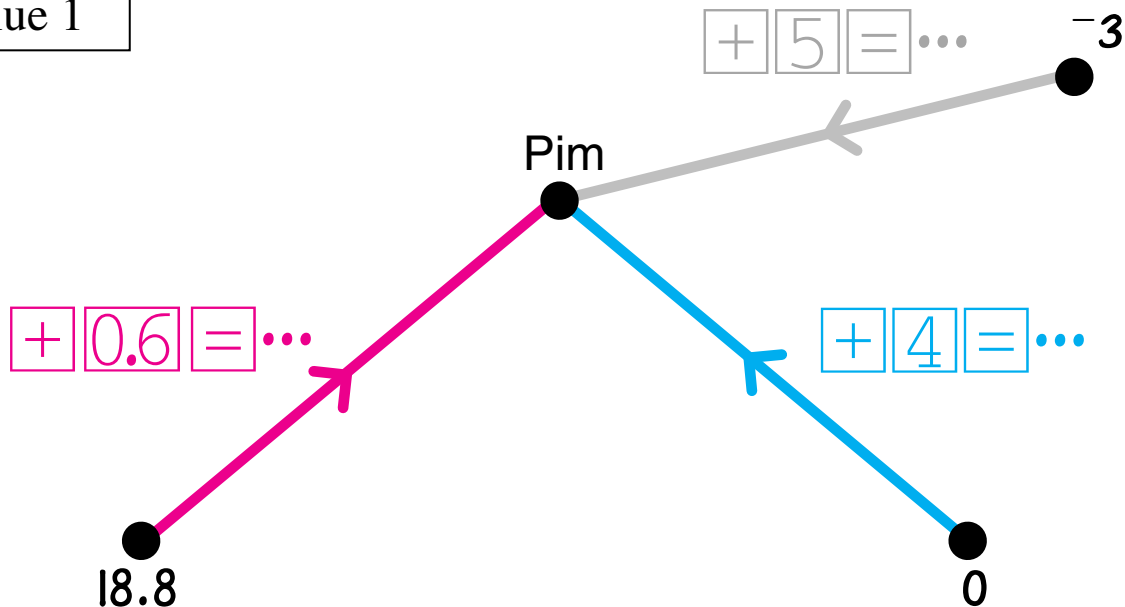
$$11111111^2 = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}}$$

Describe patterns you notice.

Pim is a secret number.

Clue 1



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

Clue 2



Who is Pim? _____