

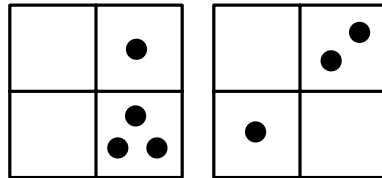
Name _____

Arcade of Problems #2

Kimo is a secret number.

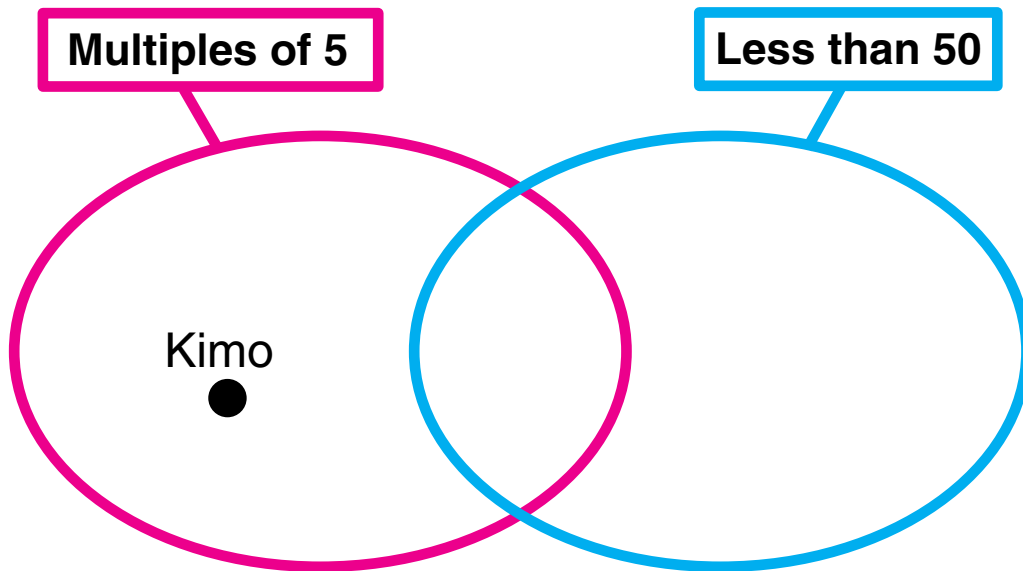
Clue 1

Kimo can be shown on this Minicomputer by taking off exactly one checker.



Kimo could be _____, _____, _____, or _____.

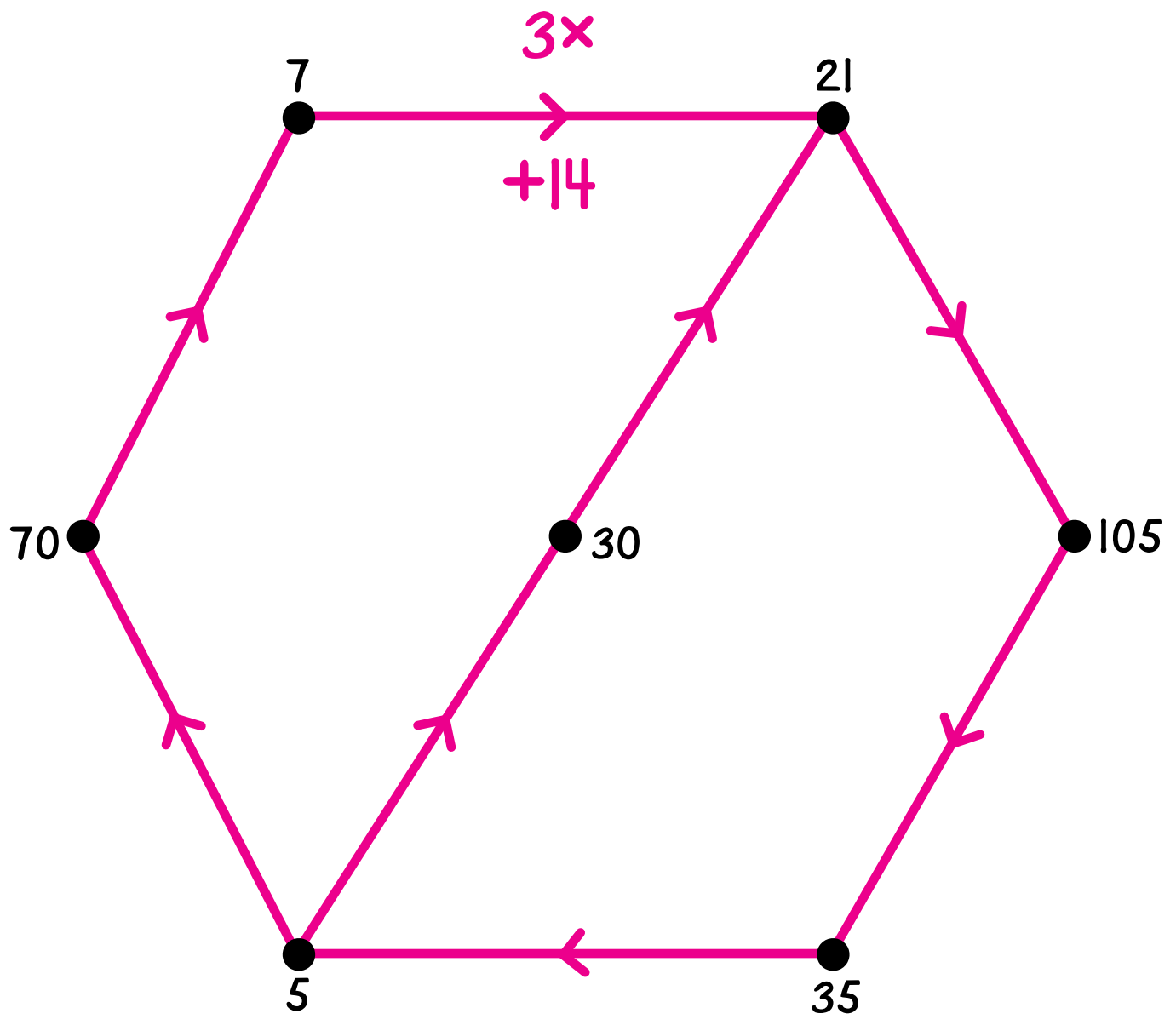
Clue 2



Who is Kimo? _____

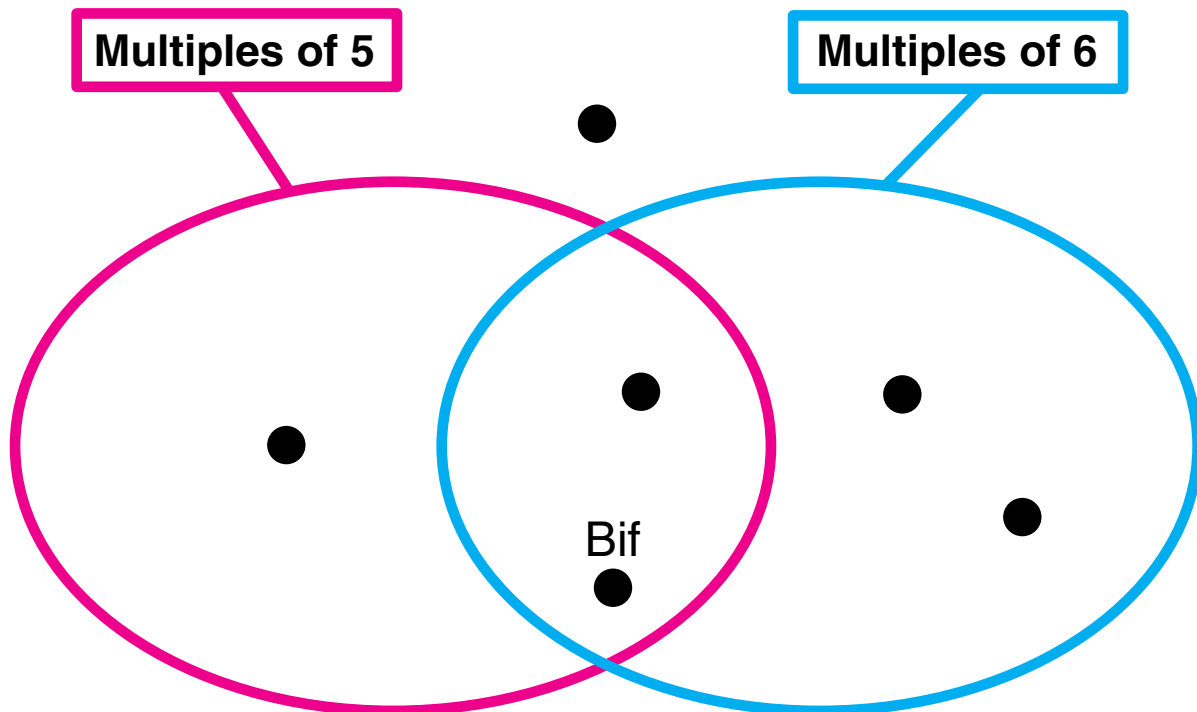
Label the arrows. Try to label some arrows in two ways.
One is done for you.

Many solutions are possible.



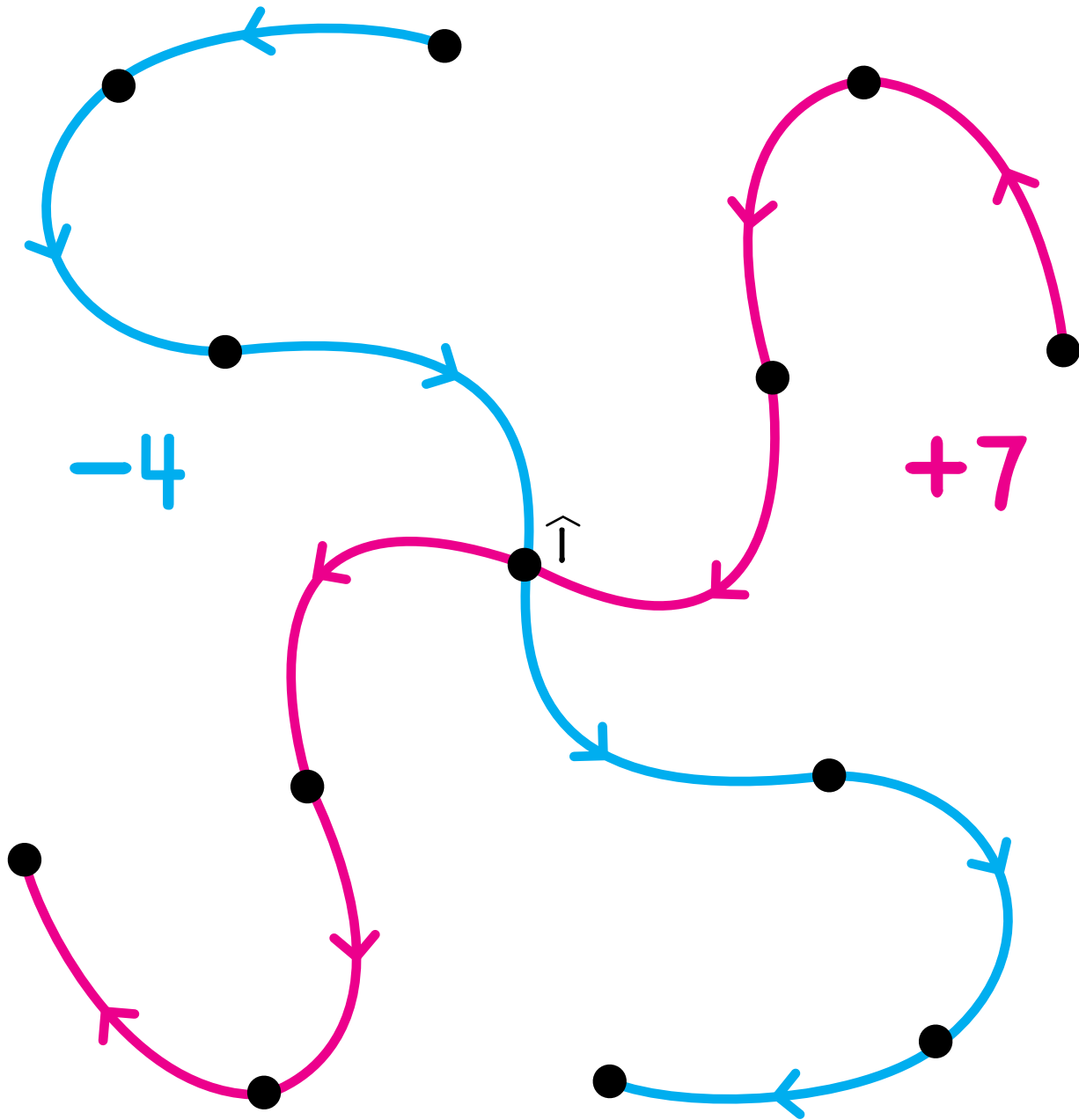
Put these numbers in the string picture. Do not label Bif.

31 35 36 42 60



Bif is not one of the numbers in the list at the top of the page.
What is the smallest whole number Bif could be? _____

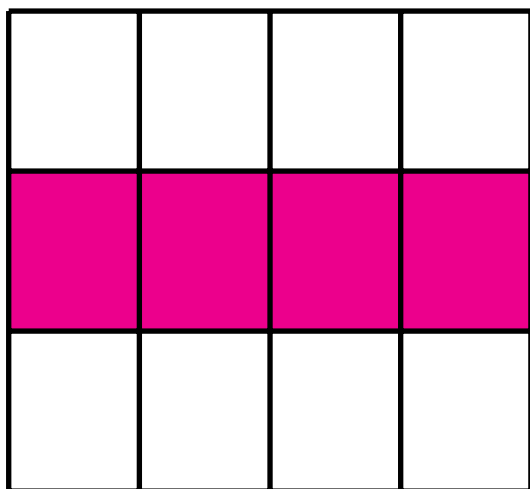
Label the dots.



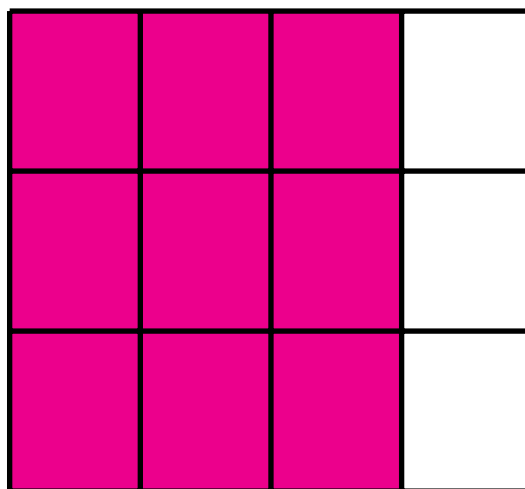
What is the least number in this picture? _____

The only multiples of 4 in this picture are _____ and _____.

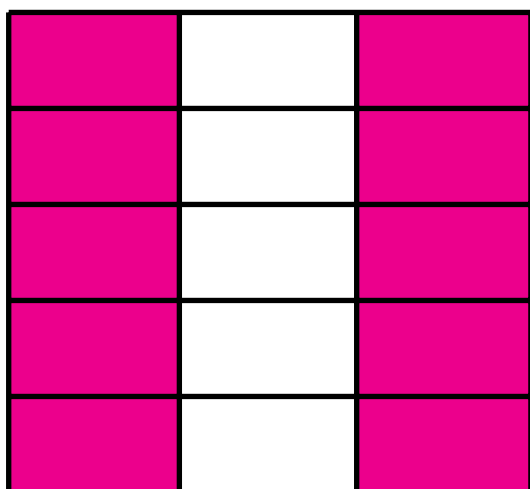
Fill in the boxes to indicate what part of the rectangle is colored red.



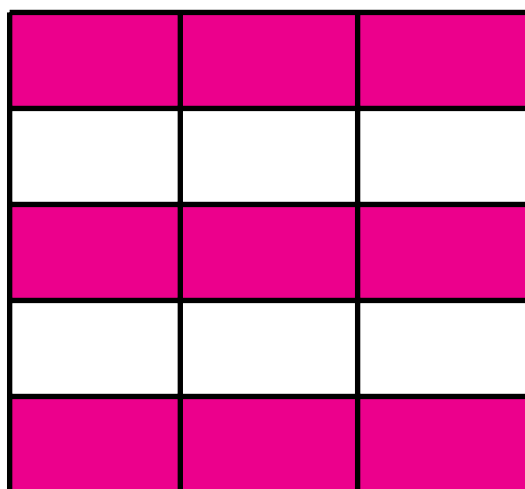
$$\frac{\square}{3} = \frac{\square}{12}$$



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



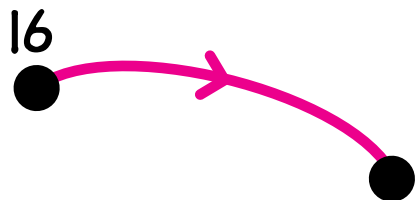
$$\frac{\square}{3} = \frac{\square}{15}$$



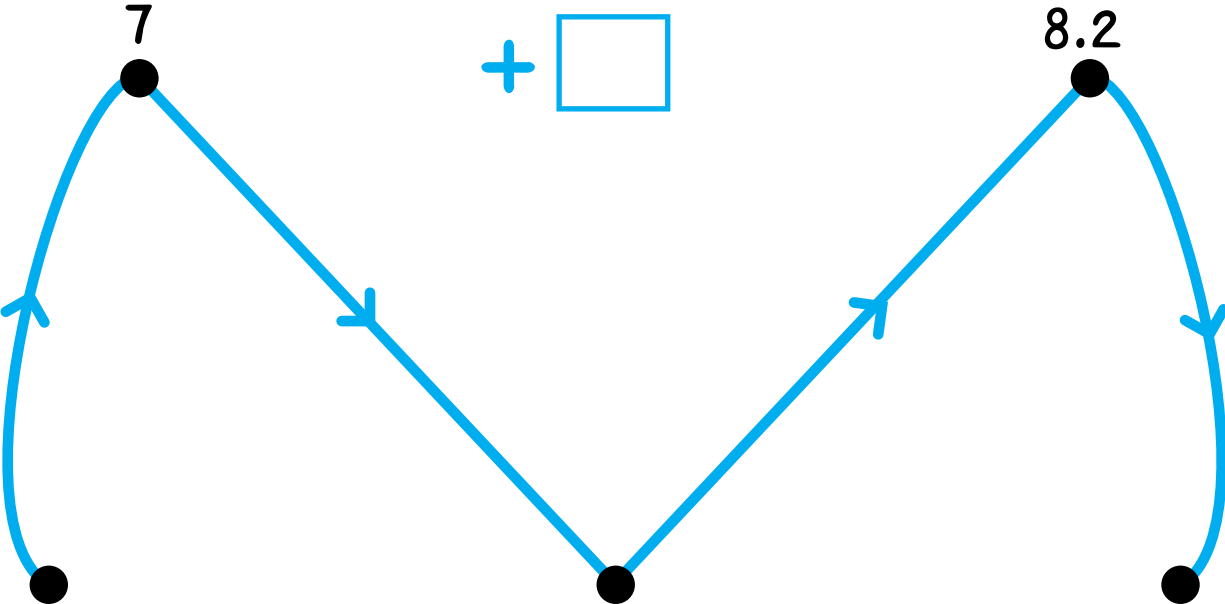
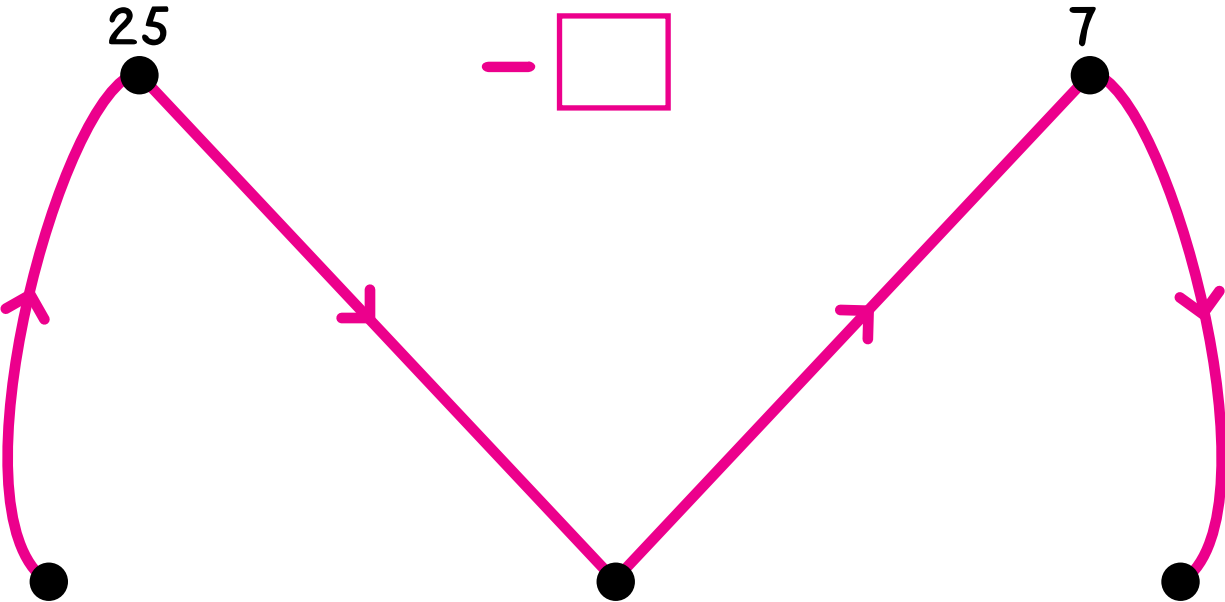
$$\frac{\square}{5} = \frac{\square}{15}$$

Build an arrow road from 16 to 3. Each arrow must be for one of these relations.

$+2$ $+8$ -2 -8 $\times 2$ $\times 8$ $\div 2$ $\div 8$



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



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

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

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

Subtract.

$$\begin{array}{r}
 3 6 5 0 4 \\
 - \quad 3 2 7 \\
 \hline
 \square \square \square \square \square
 \end{array}$$

$$\begin{array}{r}
 7 0 4 \square \\
 - 4 \square 3 \\
 \hline
 \square \square 0 8
 \end{array}$$

Complete.

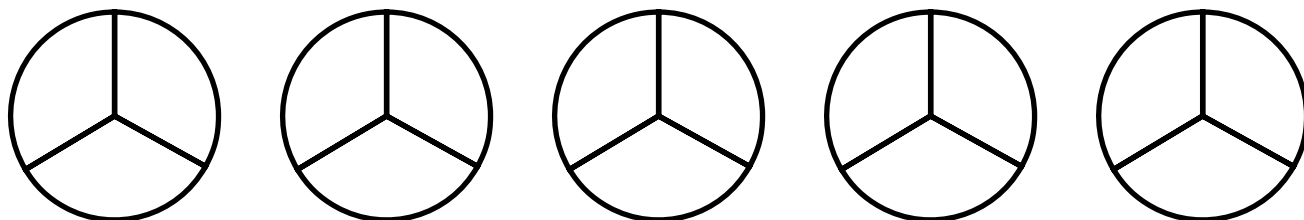


$$\frac{2}{3} = \frac{\square}{9}$$

$$\frac{2}{3} = \frac{\square}{6}$$

$$\frac{2}{3} = \frac{\square}{18}$$

$$\frac{2}{3} = \frac{\square}{15}$$



Complete. The pictures above may help you.

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

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

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

$$4 - 1\frac{2}{3} = \underline{\hspace{2cm}}$$

Put each number on the Minicomputer by adding exactly one of these checkers.

②

③

$$\begin{array}{|c|c|} \hline & \bullet \\ \hline & \\ \hline \end{array} = 20$$

$$\begin{array}{|c|c|} \hline & \bullet \\ \hline & \\ \hline \end{array} \begin{array}{|c|c|} \hline & \bullet \\ \hline \bullet & \\ \hline \end{array} = 76$$

$$\begin{array}{|c|c|} \hline & \textcircled{7} \\ \hline & \\ \hline \end{array} = 34$$

$$\begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} \begin{array}{|c|c|} \hline \textcircled{6} & \\ \hline & \\ \hline \end{array} = 88$$

$$\begin{array}{|c|c|} \hline & \\ \hline & \bullet \\ \hline \end{array} \begin{array}{|c|c|} \hline & \\ \hline \bullet & \\ \hline \end{array} \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} = 920$$

Multiply.

$$11 \times 11 = \underline{\hspace{2cm}}$$

$$11 \times 22 = \underline{\hspace{2cm}}$$

$$11 \times 33 = \underline{\hspace{2cm}}$$

$$11 \times 44 = \underline{\hspace{2cm}}$$

$$11 \times 55 = \underline{605}$$

$$11 \times 66 = \underline{\hspace{2cm}}$$

$$11 \times 77 = \underline{\hspace{2cm}}$$

$$11 \times 88 = \underline{\hspace{2cm}}$$

Divide.

$$9 \overline{) 540} \quad R =$$

$$9 \overline{) 27} \quad R =$$

$$9 \overline{) 567} \quad R =$$

$$9 \overline{) 568} \quad R =$$

$$9 \overline{) 570} \quad R =$$

$$9 \overline{) 575} \quad R =$$

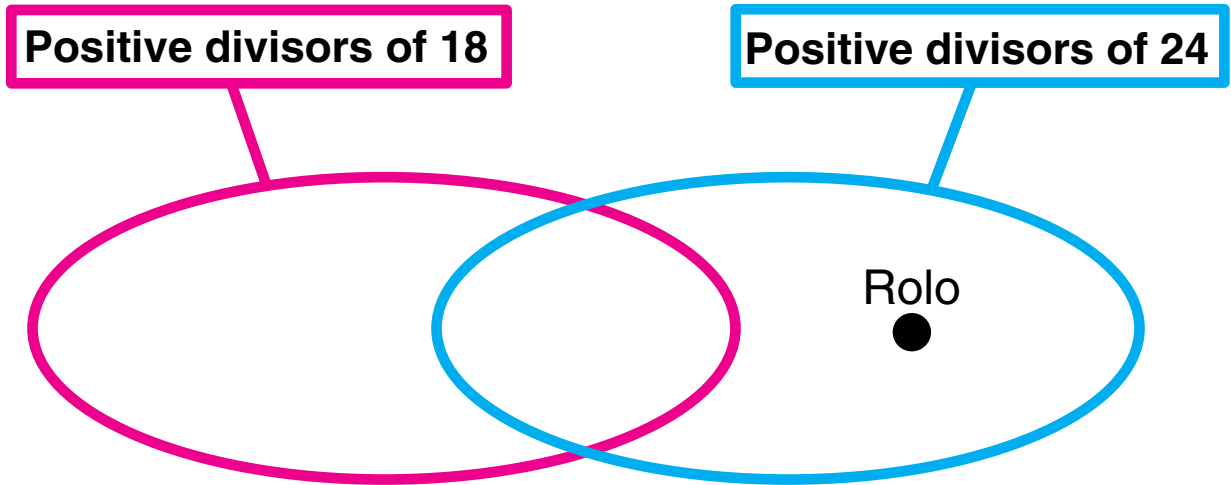
$$9 \overline{) 578} \quad R =$$

$$9 \overline{) 580} \quad R =$$

$$9 \overline{) 585} \quad R =$$

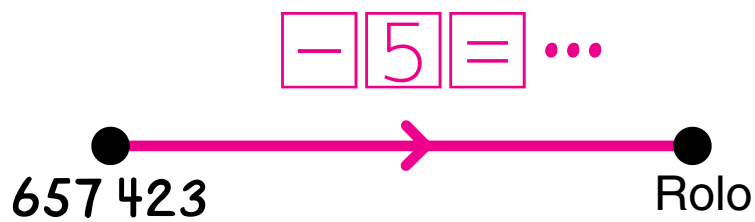
Rolo is a secret number.

Clue 1



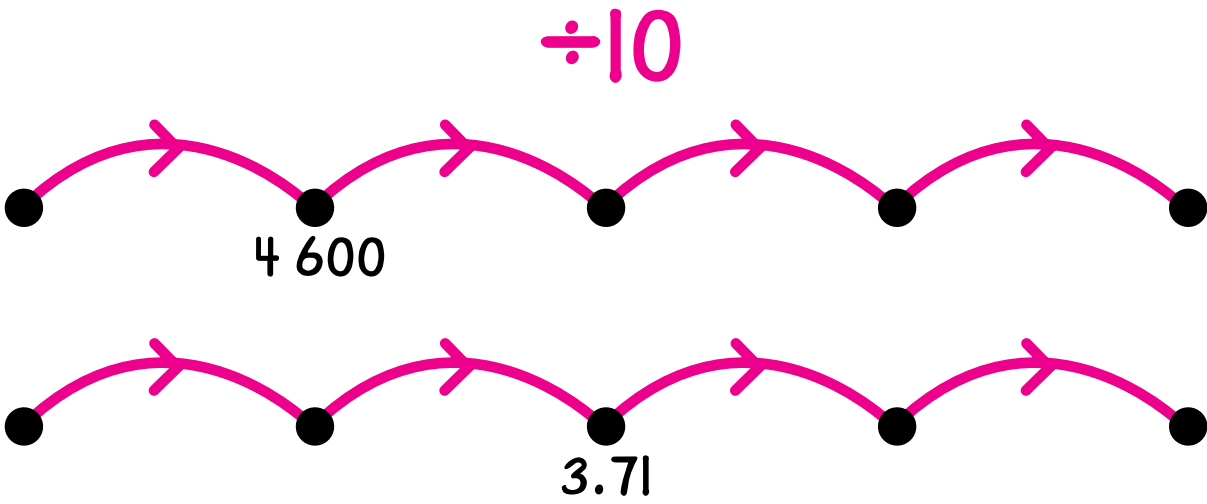
Rolo could be _____, _____, _____, or _____.

Clue 2

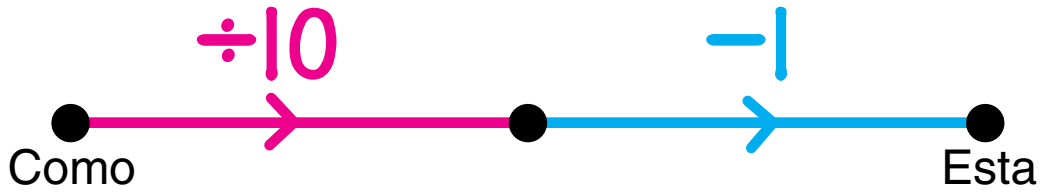


Who is Rolo? _____

Label the dots.



Complete.

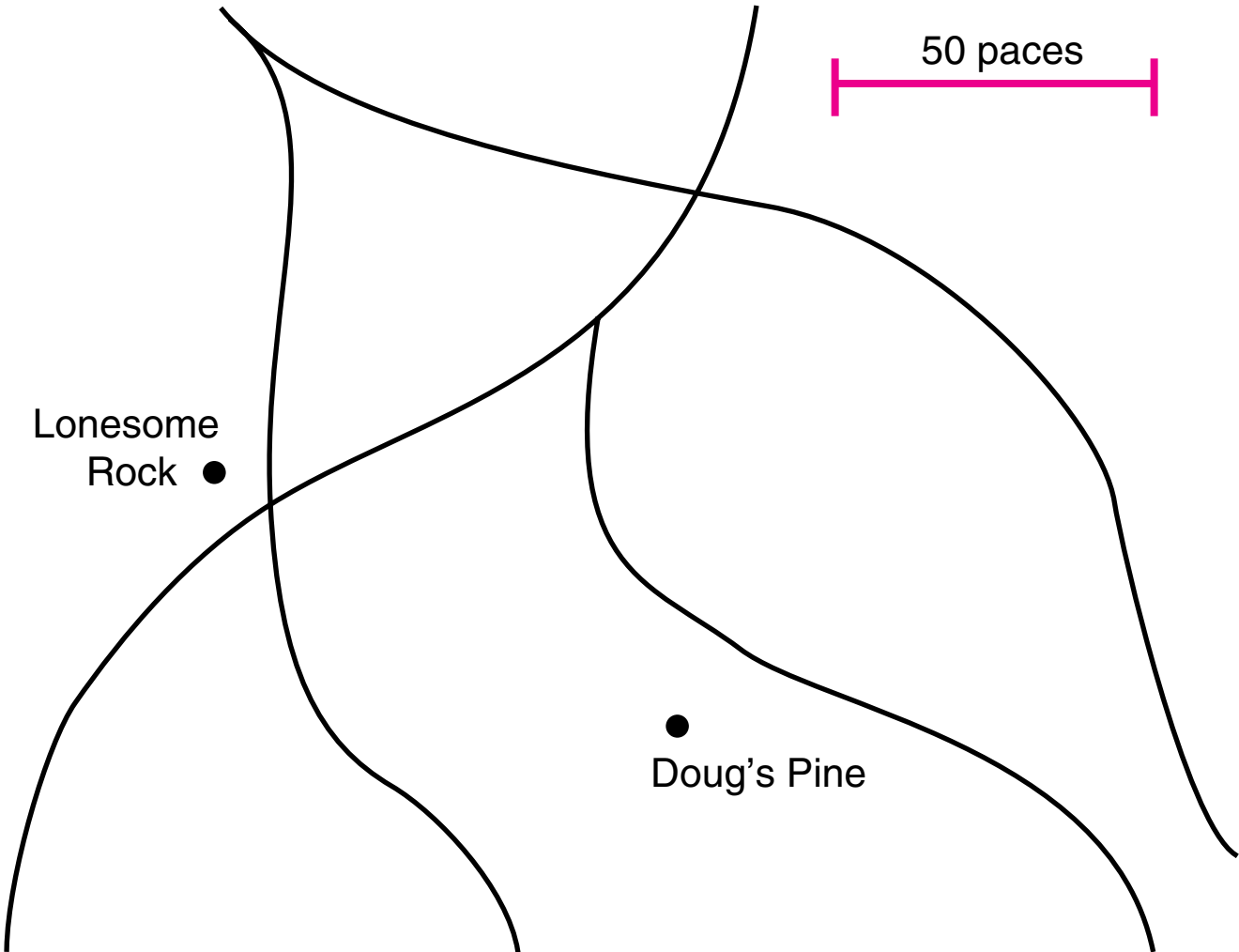


Como	Esta
1800	
52	
47.9	
	63
	0.82

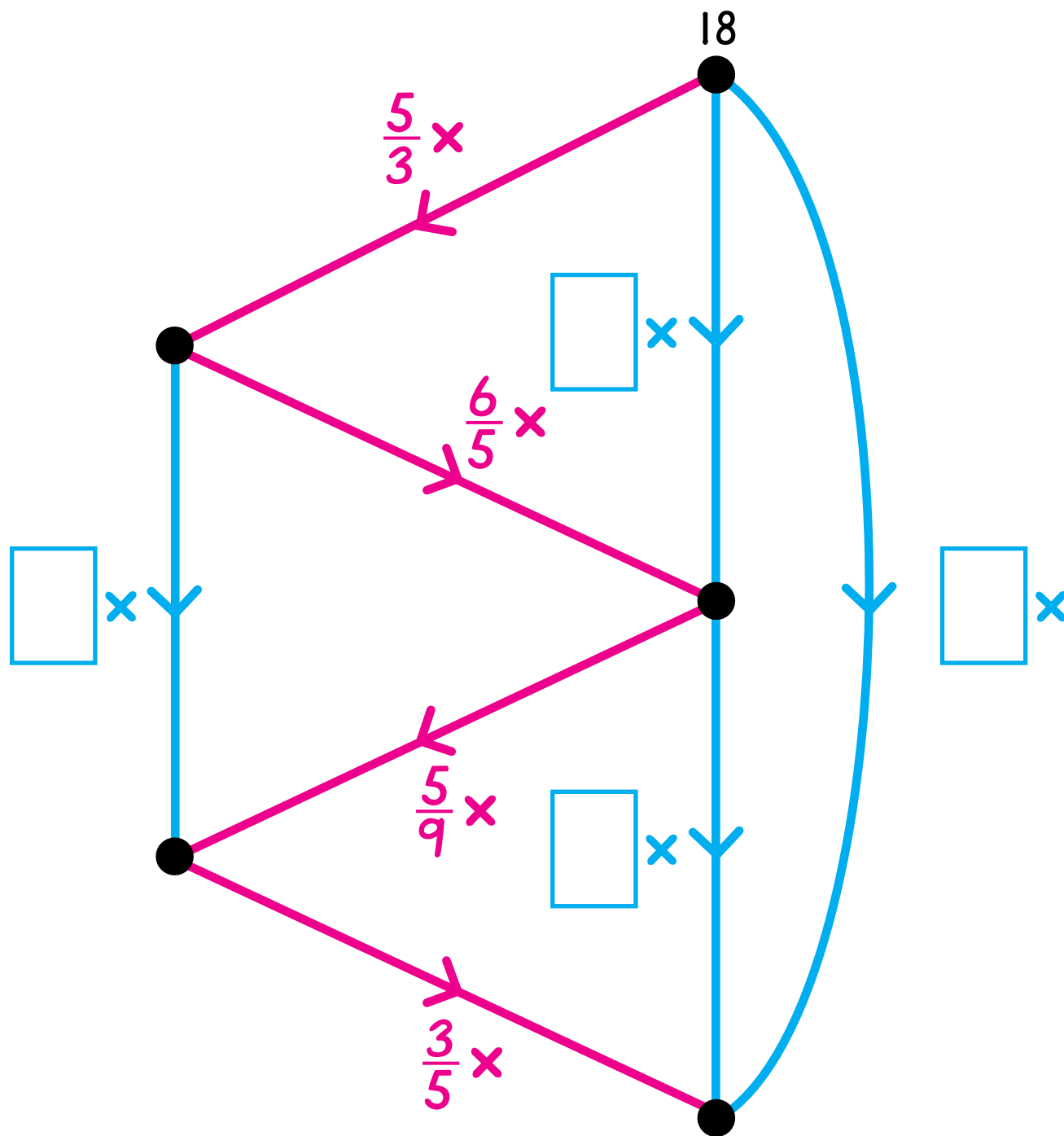
Laughing Lafferty robbed the Longhorn Saloon. He buried the money in Brittany Woods, but was soon captured by the county sheriff. After Laughing was in prison, the sheriff caught him trying to pass the following message to one of his visitors.

I buried the money on a trail. The location is 50 paces from Lonesome Rock and 50 paces from Doug's Pine.

Use this map and a compass to find the location of the buried money. Mark the location with a large dot. The red line segment shows the length of 50 paces.



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



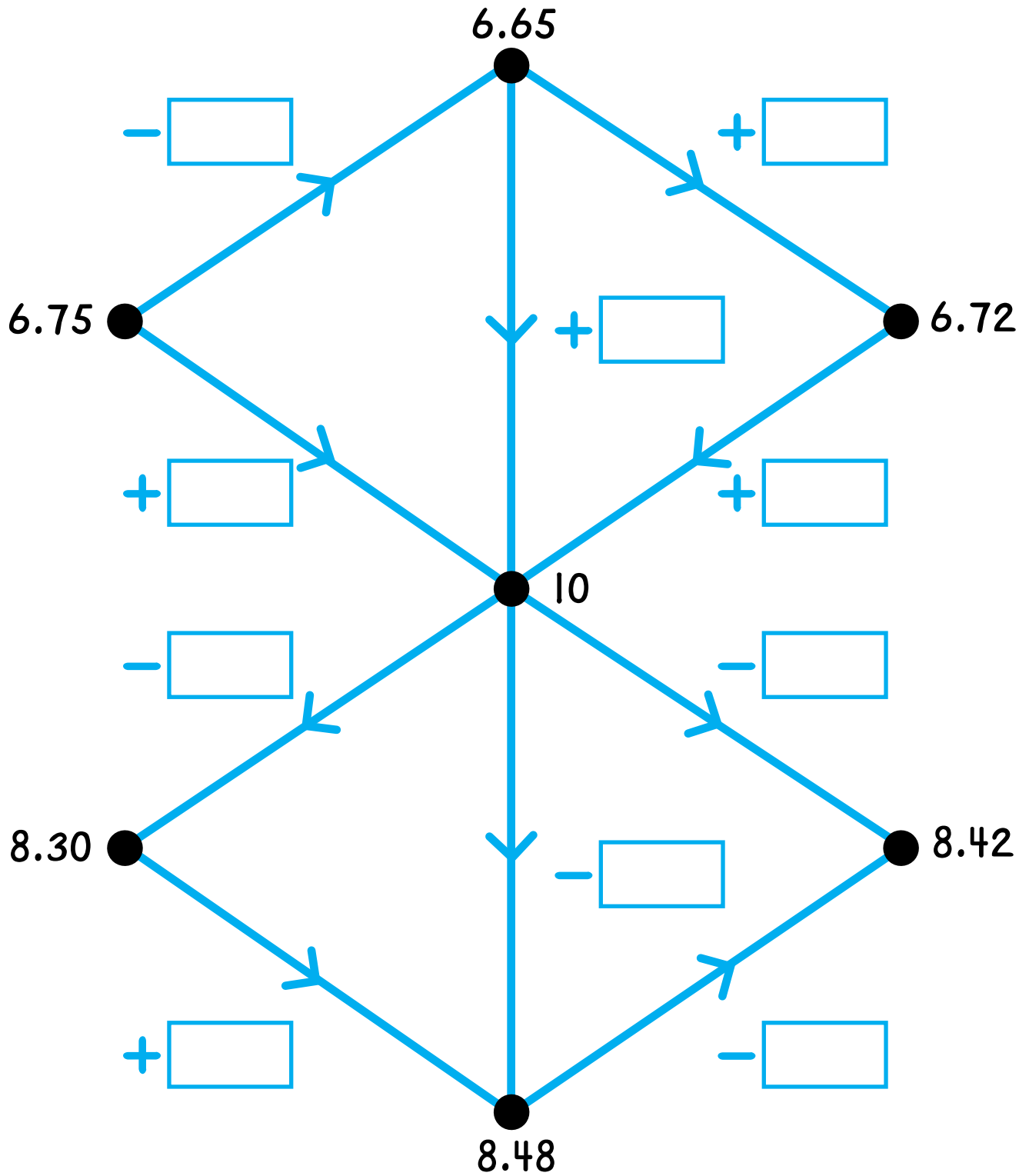
The Garnellos and Robinsons went together to see the newest science fiction movie, *Venus and Beyond*. Tom and Maria Garnello brought their four children: Dan, Angela, Theresa, and Tony. Ms. Robinson brought her three children: Kim, Dwayne, and Paula.

Mr. Garnello paid \$19.25 total for the tickets for both families. He forgot the price of the children's tickets, but paid \$3.50 for each of the three adult tickets.

How much does one child's ticket cost? _____

Show your computations below.

Fill in the boxes for the arrows.



Ara is a secret number.

Clue 1

Ara is one of these numbers.

$$(7 \times (8 - 3)) + 9 = \underline{\hspace{2cm}}$$

$$7 \times ((8 - 3) + 9) = \underline{\hspace{2cm}}$$

$$7 \times (8 - (3 + 9)) = \underline{\hspace{2cm}}$$

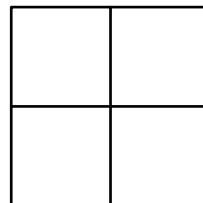
$$((7 \times 8) - 3) + 9 = \underline{\hspace{2cm}}$$

$$(7 \times 8) - (3 + 9) = \underline{\hspace{2cm}}$$

Clue 2

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

⑥ ⑦



Who is Ara? _____

Multiply.

$$\begin{array}{r} 746 \\ \times 68 \\ \hline \end{array}$$

Divide.

$$23 \overline{) 1135}$$

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

$$\begin{array}{r} 6 \square \square \\ \times \square 3 \\ \hline \square \square \square 9 \\ 4 \square 4 1 0 \\ \hline \square \square \square \square \square \end{array}$$

You buy a used stereo for \$20 and later sell it to a friend for \$30.
Then you buy it back for \$40 and sell it to your brother for \$50.

Have you gained money or lost money? _____

How much money have you gained or lost? _____

Hint: An arrow road recording the transactions might help to solve the problem.

Explain your answer. _____

Miff is a secret number.

Clue 1

Miff is the ending number of an arrow road starting at 865 and using exactly two red arrows and two blue arrows.

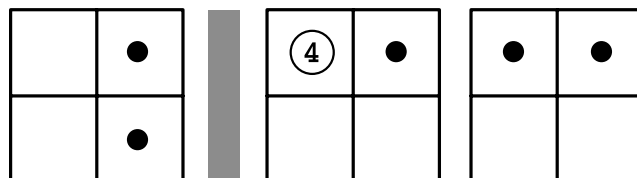
$$\begin{array}{r} \div 10 \\ - 3 \end{array}$$

●
865

Miff could be _____, _____, _____, _____, _____, or _____.

Clue 2

Miff can be shown on this Minicomputer by taking off exactly one checker.



Who is Miff? _____

Locate these numbers in the string picture.

$$\frac{7}{2}$$

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

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

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

$$\frac{8}{5}$$

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

$$0.6$$

$$4 \times 0.7$$

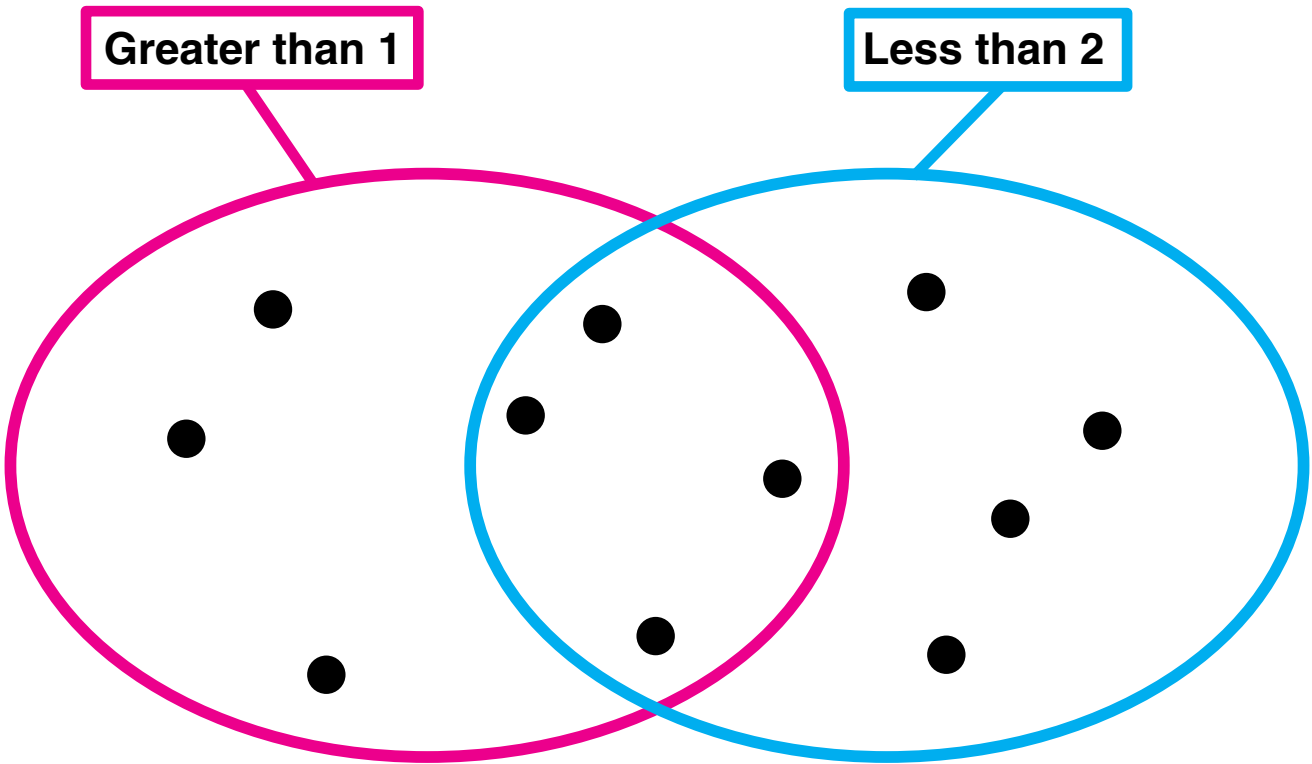
$$6 \times 0.3$$

$$\frac{5}{6} + \frac{1}{3}$$

$$0.5 \times 1.4$$

Greater than 1

Less than 2



Put one of these symbols in each box to make the calculator sentence true.

+ **-** **×** **÷**

A symbol may be used twice in one sentence.

$$\boxed{8} \quad \boxed{} \quad \boxed{0} \quad \boxed{} \quad \boxed{3} \quad \boxed{=} \quad \mathbf{0}$$

$$\boxed{9} \quad \boxed{} \quad \boxed{4} \quad \boxed{} \quad \boxed{5} \quad \boxed{=} \quad \mathbf{!}$$

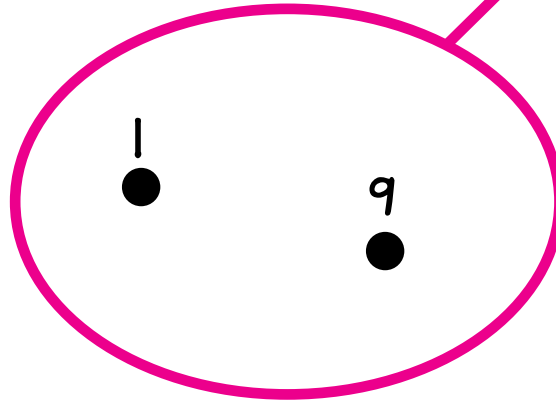
$$\boxed{4} \quad \boxed{} \quad \boxed{7} \quad \boxed{} \quad \boxed{6} \quad \boxed{=} \quad \mathbf{-18}$$

$$\boxed{7} \quad \boxed{} \quad \boxed{2} \quad \boxed{} \quad \boxed{4} \quad \boxed{=} \quad \mathbf{7.5}$$

Han is a secret whole number less than 200.

Clue 1

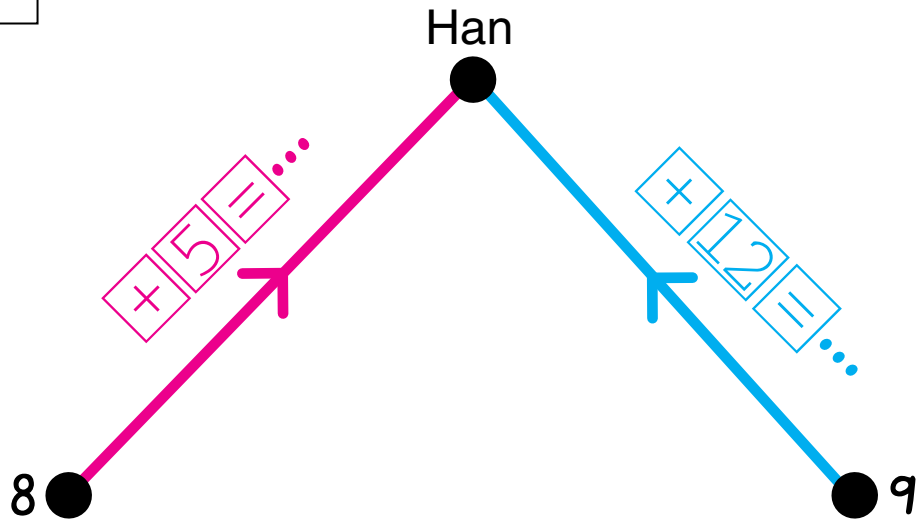
2



Positive divisors of Han

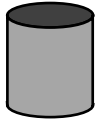
Han could be _____, _____, _____, _____, _____, _____, _____, _____,
_____, _____, or _____.

Clue 2



Who is Han? _____

For each item, decide which price is better and explain.

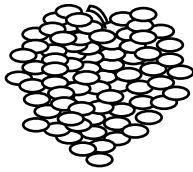


Peanut Butter

16 oz. for \$1.50

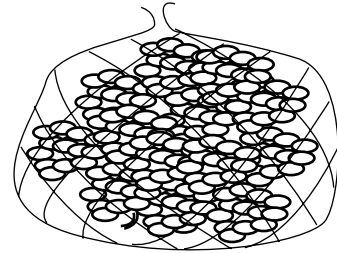


24 oz. for \$2.10

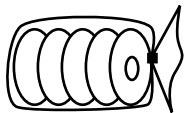


Grapes

\$1.29 per pound

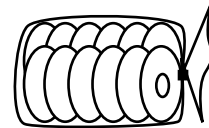


3 pounds for \$4.00



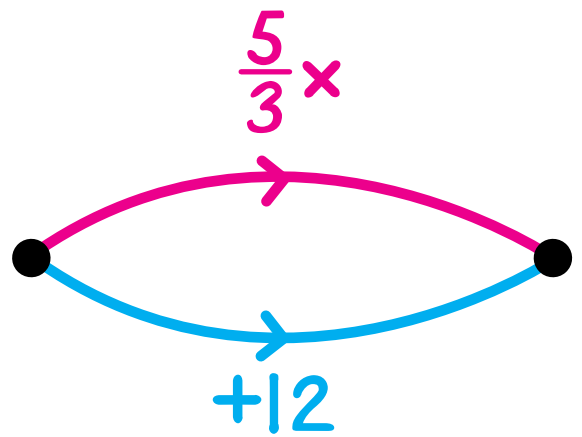
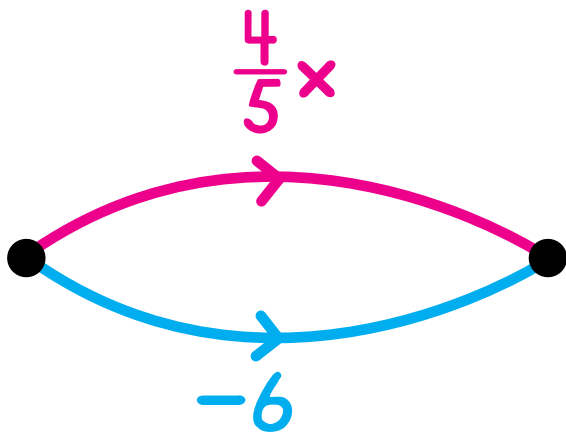
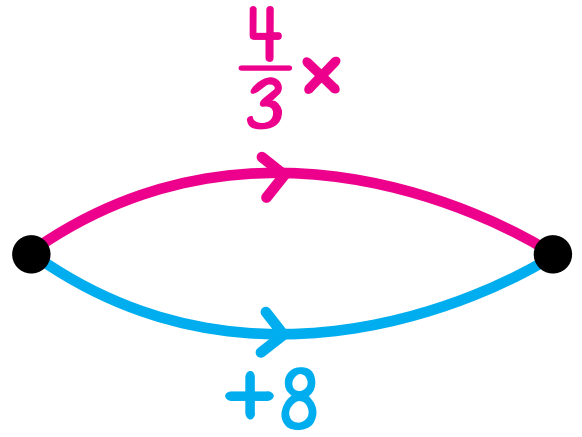
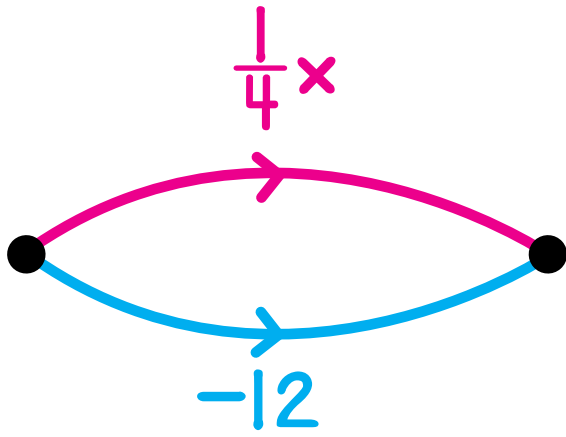
Bagels

Package of 5 for \$1.15



One dozen for \$2.89

Label the dots.



\sqcup : Least common multiple

\sqcap : Greatest common divisor

Mo is a secret number.

Clue 1

$$8 \sqcup Mo = 24$$

Mo could be _____, _____, _____, or _____.

Clue 2

$$20 \sqcap Mo = 2$$

Who is Mo? _____

Match each blue tag with a red tag.

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

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

$$\frac{3}{10} + \frac{2}{5}$$

$$\frac{7}{4} - \frac{1}{2}$$

$$3 \times 0.5$$

$$\frac{1}{2} \times 0.7$$

$$0.7$$

$$0.35$$

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

$$1\frac{2}{3}$$

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

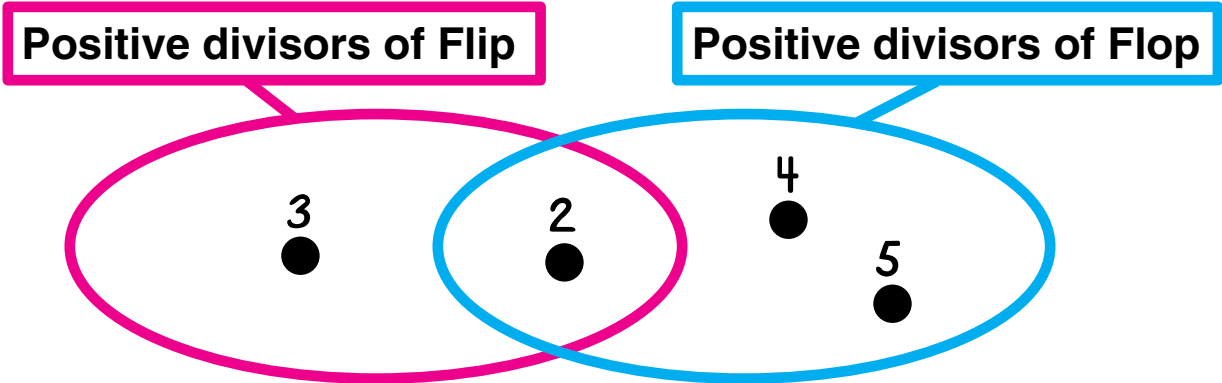
$$1\frac{1}{4}$$

Flip and Flop are secret whole numbers.

Clue 1

Flip is less than 50, and Flop is less than 100.

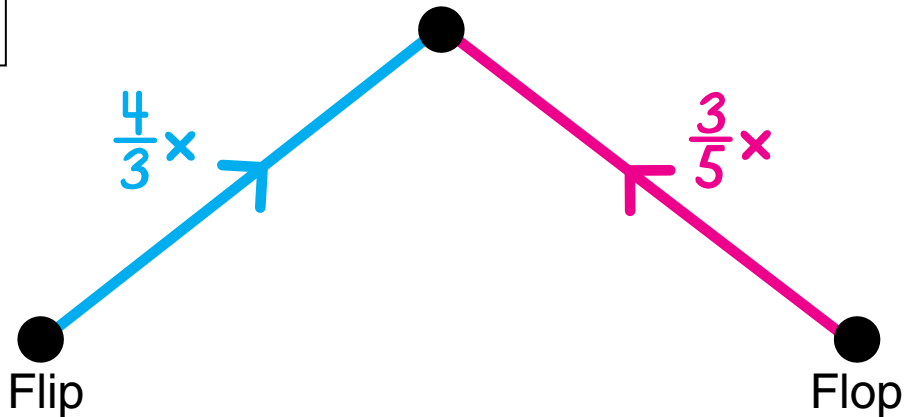
Clue 2



Flip could be _____, _____, or _____.

Flop could be _____, _____, or _____.

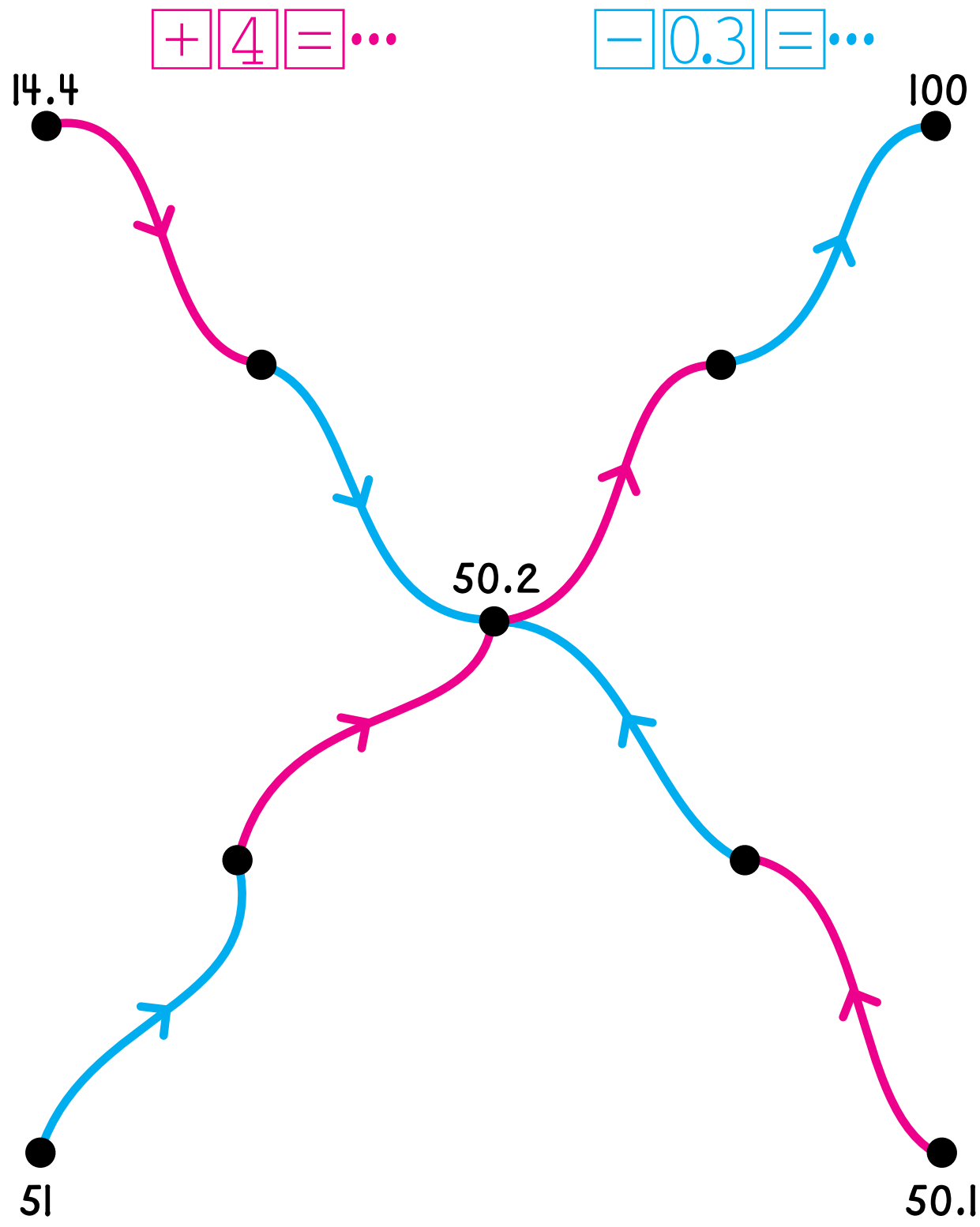
Clue 3



Who is Flip? _____

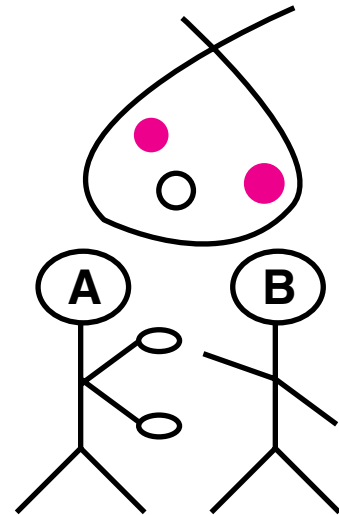
Who is Flop? _____

Label the dots. Many solutions are possible.



Marble Game

This two-player game uses a bag with one white and two red marbles. The first player (player **A**) shakes the bag and, without looking, reaches in and hides two marbles in one hand and one marble in the other hand. Then the second player (player **B**) selects one of Player **A**'s hands.



Player **B** wins if the hand has a red marble in it.
Player **A** wins if the hand does not have a red marble in it.

Is this a fair game? _____ Explain.
If not, explain who is favored.

If the game is not fair, explain how to make a fair marble game for the two players.