

Name \_\_\_\_\_

# Selection of Problems #2

Tor is a secret number.

Clue 1

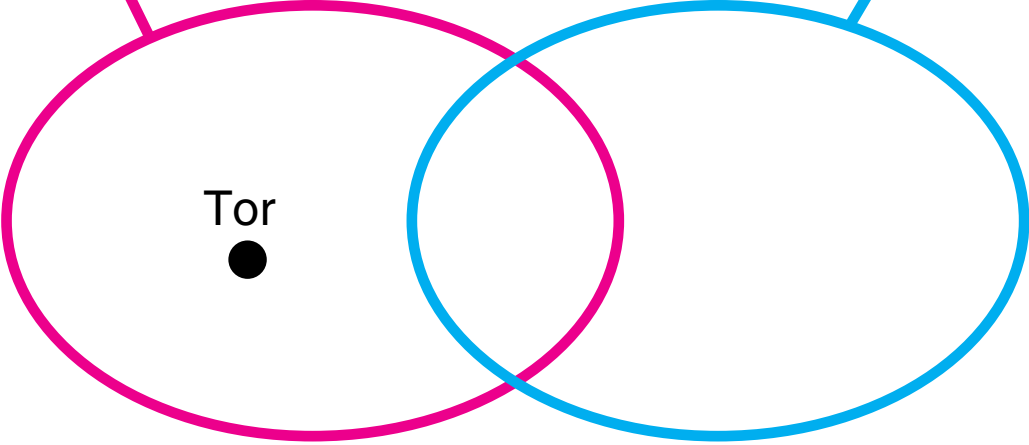
Tor is one of these numbers.

|  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
|--|---|---|---|--|--|----|---|----|--|---|---|---|---|--|
| <table border="1"><tr><td>⑩</td><td></td></tr><tr><td>●</td><td></td></tr></table> = _____ | ⑩ |   | ● |  | <table border="1"><tr><td>●</td><td>⑦</td></tr><tr><td></td><td></td></tr></table> = _____   | ●  | ⑦ |    |  | <table border="1"><tr><td>⑧</td><td>●</td></tr><tr><td>●</td><td></td></tr></table> = _____ | ⑧ | ● | ● |  |
| ⑩  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ●  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ●  | ⑦ |   |   |  |  |    |   |    |  |   |   |   |   |  |
|  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ⑧  | ● |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ●  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| <table border="1"><tr><td>●</td><td>⑤</td></tr><tr><td></td><td></td></tr></table> = _____ | ● | ⑤ |   |  | <table border="1"><tr><td>●●</td><td></td></tr><tr><td>●●</td><td></td></tr></table> = _____ | ●● |   | ●● |  | <table border="1"><tr><td></td><td>③</td></tr><tr><td>③</td><td></td></tr></table> = _____  |   | ③ | ③ |  |
| ●  | ⑤ |   |   |  |  |    |   |    |  |   |   |   |   |  |
|  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ●●   |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ●●   |   |   |   |  |  |    |   |    |  |   |   |   |   |  |
|  | ③ |   |   |  |  |    |   |    |  |   |   |   |   |  |
| ③  |   |   |   |  |  |    |   |    |  |   |   |   |   |  |

Clue 2

Multiples of 7

Greater than 50



Who is Tor? \_\_\_\_\_

Fill in the boxes so that the calculations are correct.

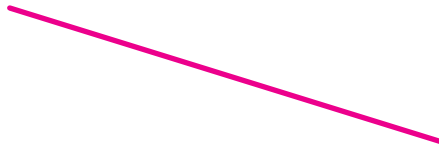
$$\begin{array}{r} 8274 \\ + \square 6 \square \\ \hline \square 7 \square 9 \end{array}$$

$$\begin{array}{r} \square \square 39 \\ + 124 \square \\ \hline 59 \square 2 \end{array}$$

$$\begin{array}{r} \square 3 \square 9 \\ - 103 \square \\ \hline 6 \square 16 \end{array}$$

$$\begin{array}{r} 3875 \square \\ - 2 \square \square 4 \\ \hline \square \square 937 \end{array}$$

Extend this line segment until it is 8 cm long.



How much longer did you make the segment? \_\_\_\_\_cm

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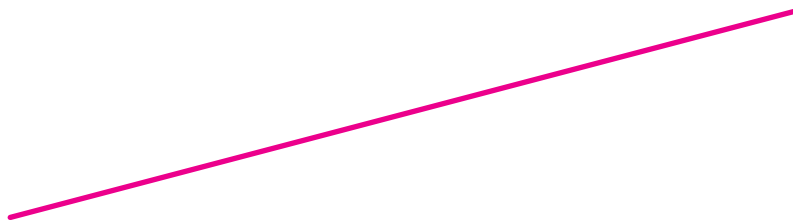
Extend this line segment until it is 14.3 cm long.



How much longer did you make the segment? \_\_\_\_\_cm

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Extend this line segment until it is 11.6 cm long.

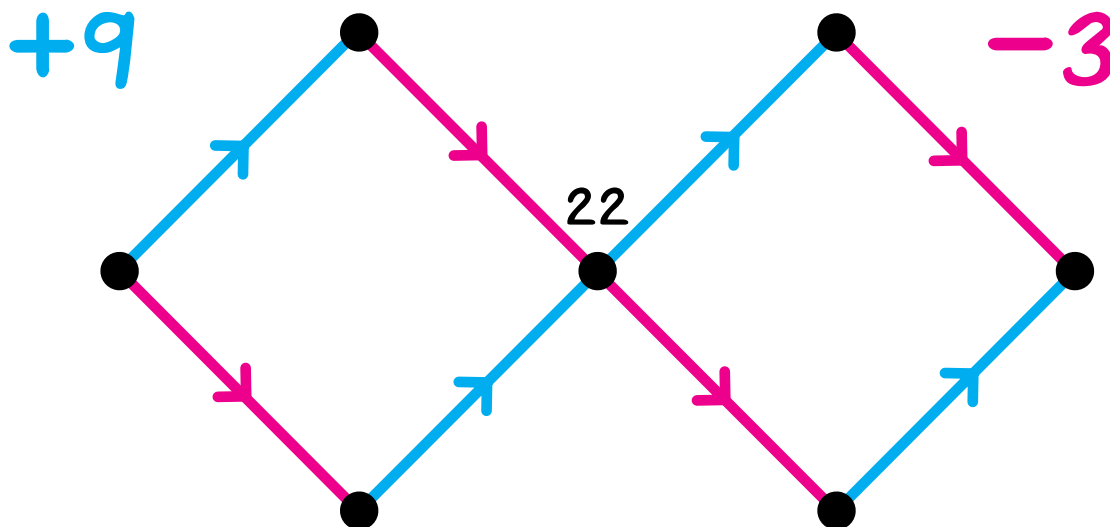


How much longer did you make the segment? \_\_\_\_\_cm

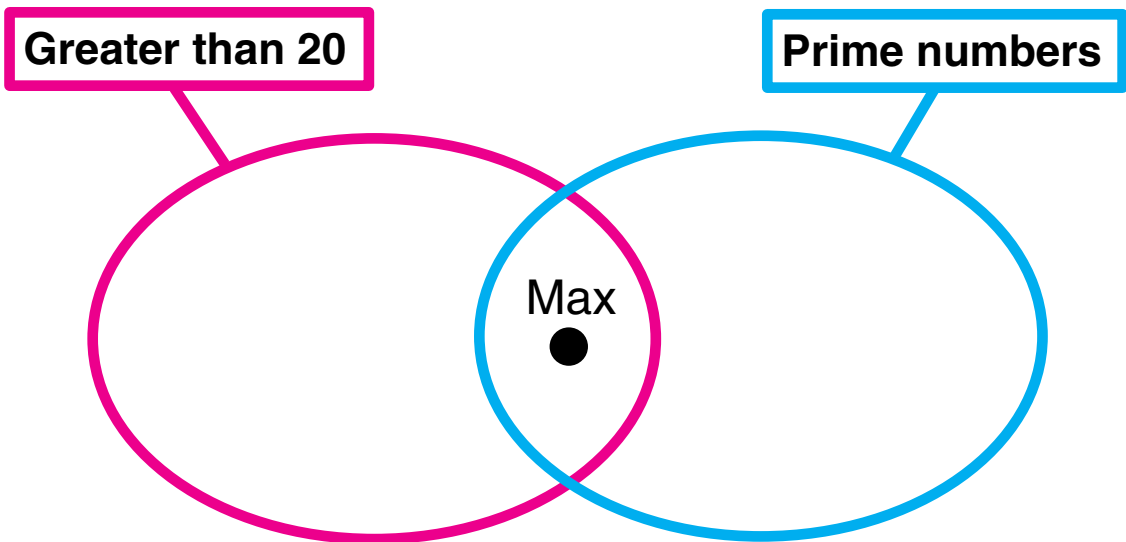
Max is a secret number.

Clue 1

Max is in this arrow picture.



Clue 2



Who is Max? \_\_\_\_\_

Complete these number sentences.

$$37 \times 3 = \square$$

$$37 \times 6 = \square$$

$$37 \times 9 = \square$$

$$37 \times 12 = \square$$

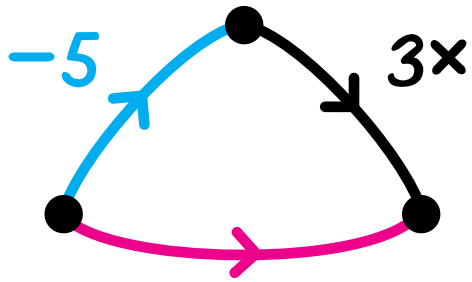
$$37 \times \square = 555$$

•  
•  
•

$$37 \times 27 = \square$$

$$37 \times 30 = \square$$

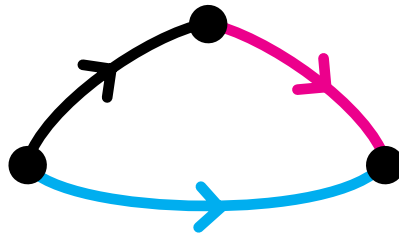
SURPRISE!



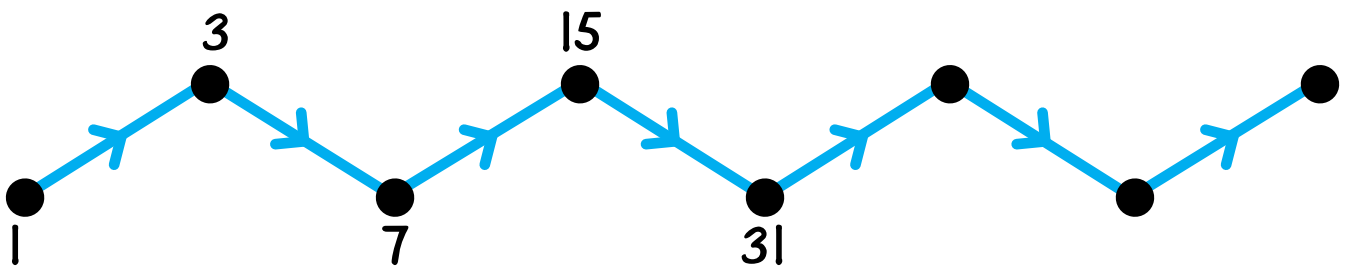
Use this two-step rule for red arrows to label the dots.



### Guess My Rule



Find a two-step rule for blue arrows. Indicate the rule above and label the remaining dots using this rule.



Put each number on the Minicomputer by adding exactly one regular checker. There may be more than one solution.

An odd number

|   |  |
|---|--|
| 7 |  |
|   |  |

= \_\_\_\_\_

A number less than  $\hat{5}$

|   |  |
|---|--|
| ^ |  |
|   |  |

= \_\_\_\_\_

A positive divisor of 28

|   |  |
|---|--|
|   |  |
| 3 |  |

= \_\_\_\_\_

A multiple of 7

|  |    |
|--|----|
|  | 10 |
|  |    |

= \_\_\_\_\_

A positive prime number

|  |   |
|--|---|
|  |   |
|  | 7 |

= \_\_\_\_\_

A square number

|   |  |
|---|--|
| 4 |  |
|   |  |

= \_\_\_\_\_

A number between 0.25 and 0.3

|  |  |
|--|--|
|  |  |
|  |  |

+

|  |   |
|--|---|
|  |   |
|  | 2 |

+

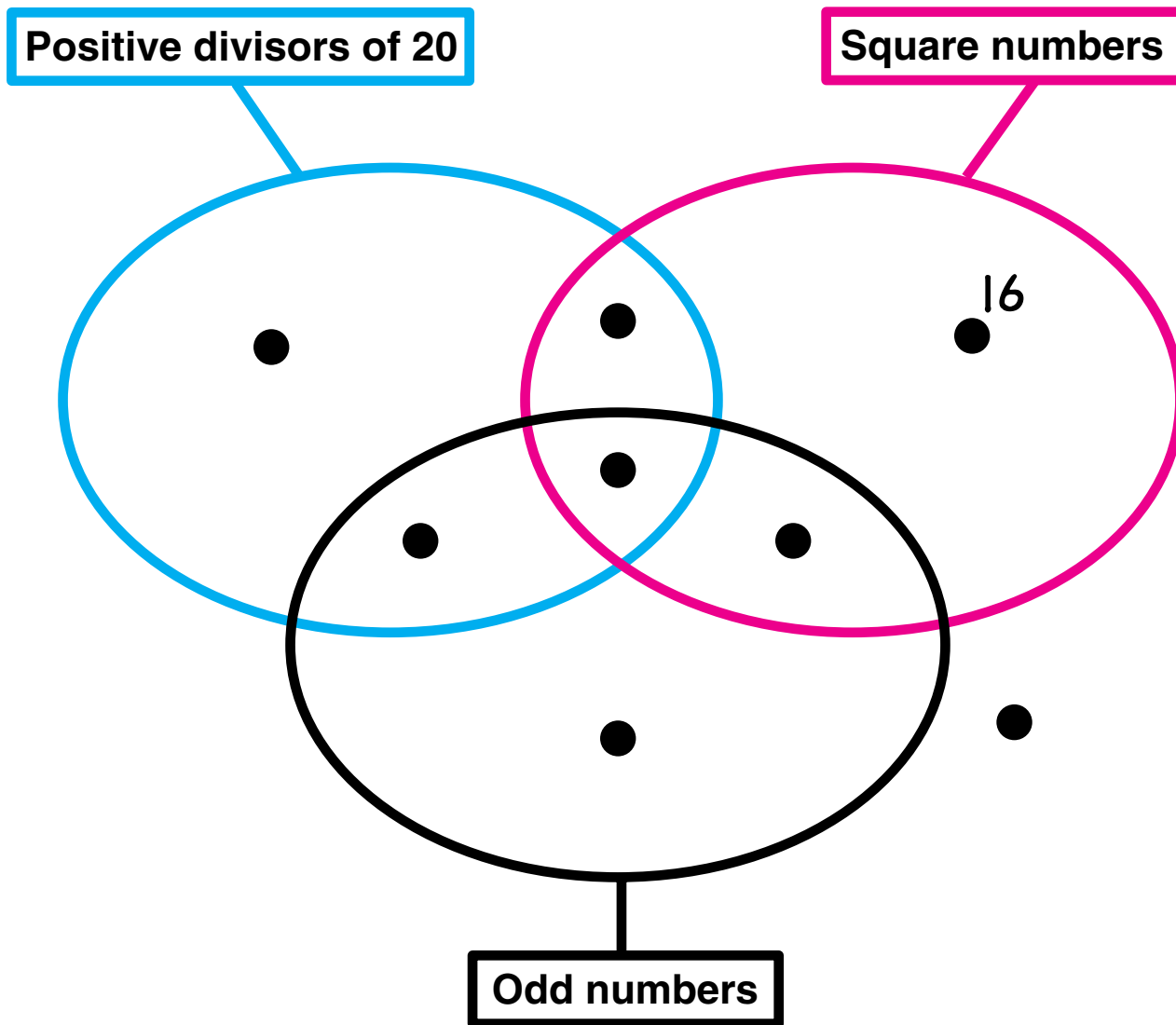
|  |  |
|--|--|
|  |  |
|  |  |

= \_\_\_\_\_

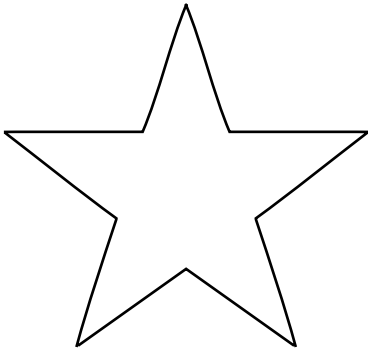


Label each dot in the string picture with one of these numbers.  
One dot is labeled for you.

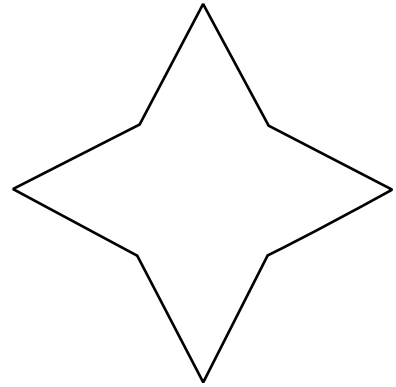
1    4    5    6    9    10    11    16



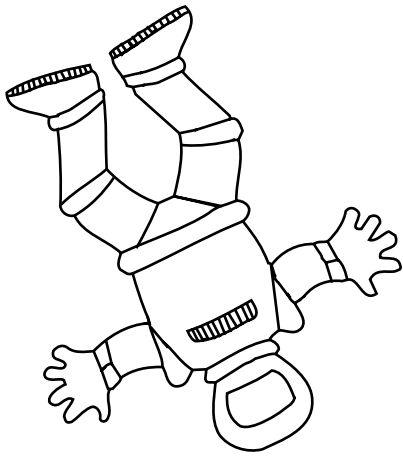
Draw all of the lines of symmetry for each picture.



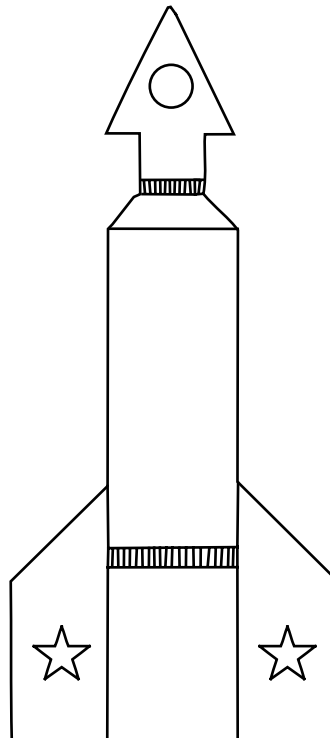
**five** lines of symmetry



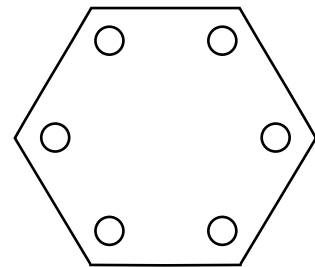
**four** lines of symmetry



**one** line of symmetry

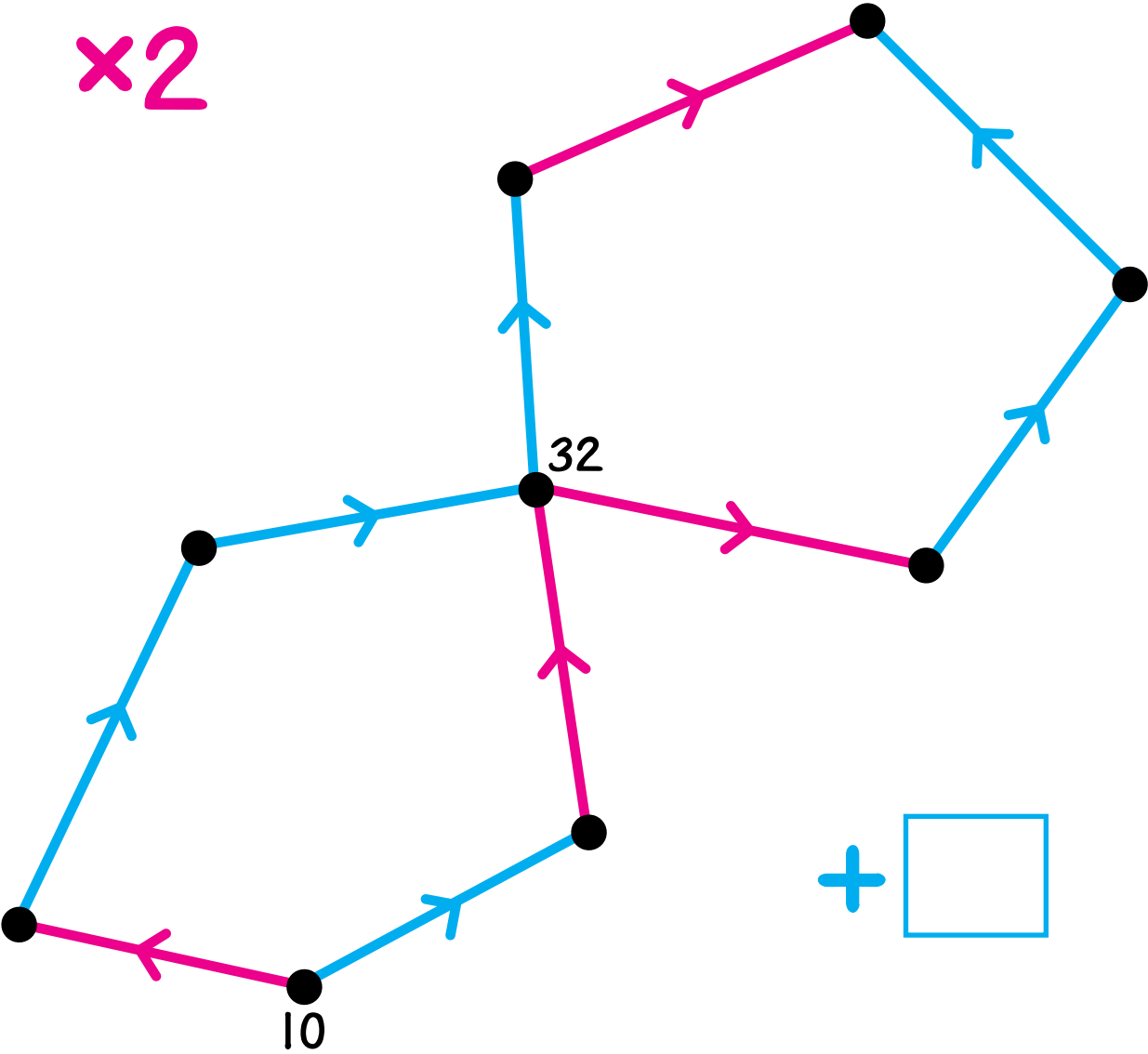


**one** line of symmetry

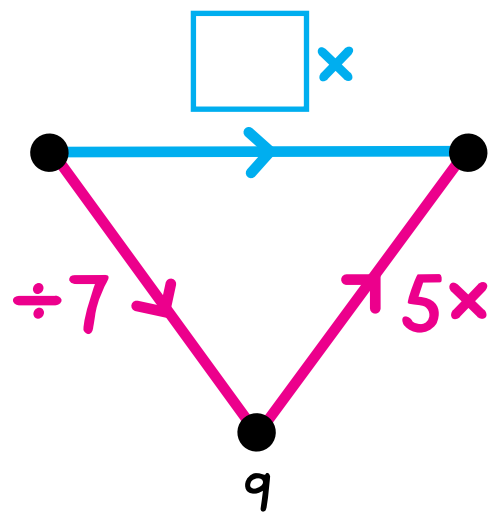
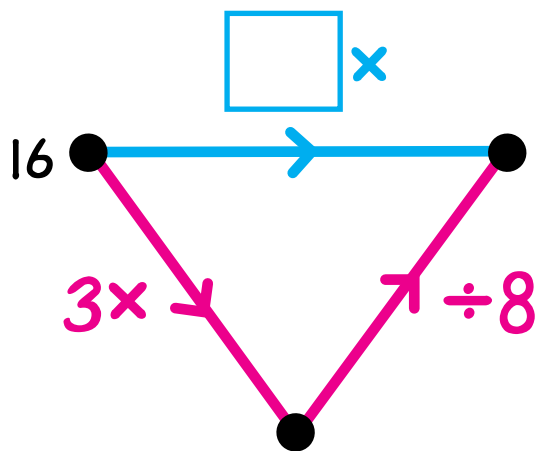
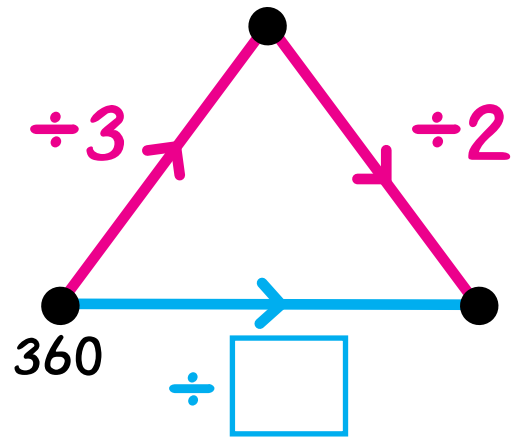
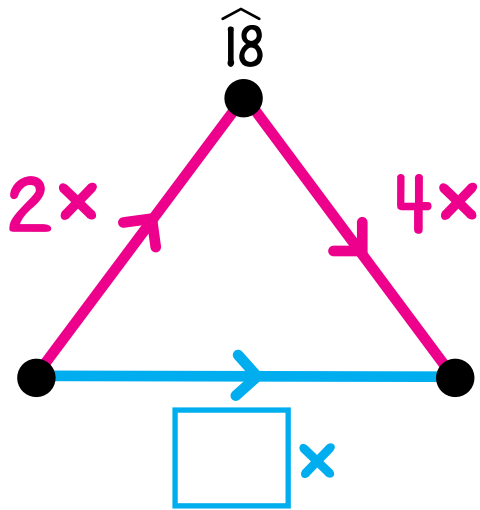


**six** lines of symmetry

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



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



Give the dimensions of at least four boxes that can be built using exactly 60 centimeter cubes. One is done for you.

Volume:  $60 \text{ cm}^3$

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5 cm by 2 cm by 6 cm

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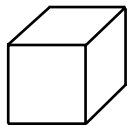
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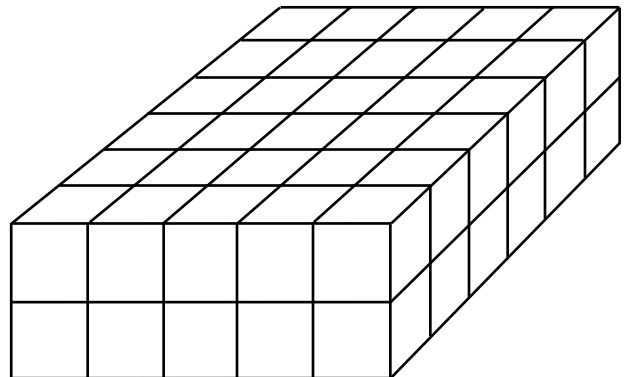
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60 of these



will make this box.



Multiply.

$$\begin{array}{r} 85 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 8.5 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 3921 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 39.21 \\ \times 7 \\ \hline \end{array}$$

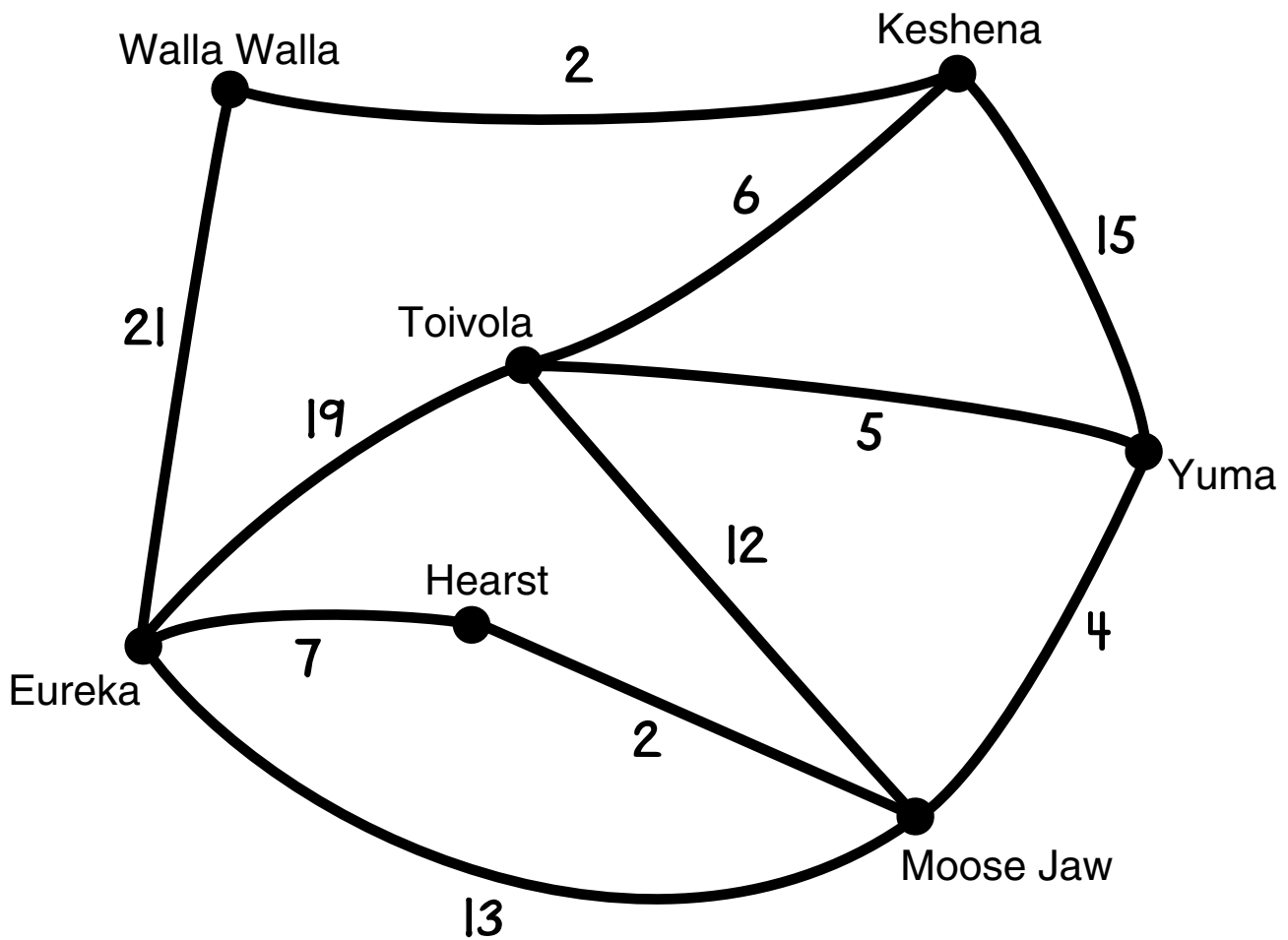
$$\begin{array}{r} 805 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 0.805 \\ \times 8 \\ \hline \end{array}$$

Color one-third of each shape blue. Use the pictures to find other names for  $\frac{1}{3}$ .

Names for  $\frac{1}{3}$

$\frac{1}{3} =$



What is the length of the shortest route between Eureka and Keshena? \_\_\_\_\_

What is the length of the shortest route between Keshena and Moose Jaw? \_\_\_\_\_

What is the length of the shortest route between Eureka and Toivola? \_\_\_\_\_



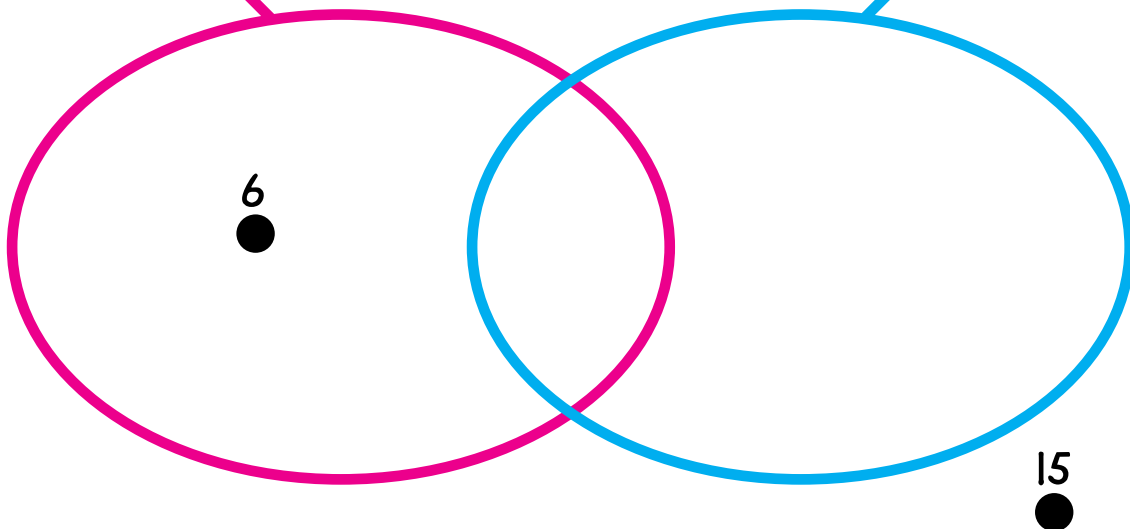
The red label is one of these:

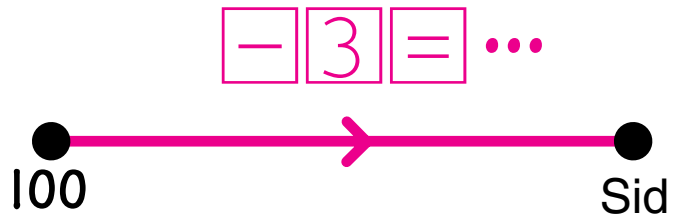
The blue label is one of these:

|                                |
|--------------------------------|
| <b>Multiples of 3</b>          |
| <b>Multiples of 5</b>          |
| <b>Odd numbers</b>             |
| <b>Less than 50</b>            |
| <b>Greater than 20</b>         |
| <b>Positive divisors of 12</b> |
| <b>Positive divisors of 30</b> |

|                                |
|--------------------------------|
| <b>Multiples of 3</b>          |
| <b>Multiples of 5</b>          |
| <b>Odd numbers</b>             |
| <b>Less than 50</b>            |
| <b>Greater than 20</b>         |
| <b>Positive divisors of 12</b> |
| <b>Positive divisors of 30</b> |

Label the strings.





Circle the numbers below that Sid could be.

97

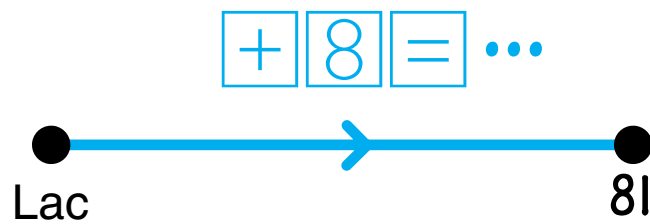
103

40

90

80

3



Circle the numbers below that Lac could be.

70

41

1

65

0

$\hat{8}$

Xaf is a secret number.

Clue 1

Xaf is the ending number of a road starting at 1 and using exactly two red arrows and one blue arrow.

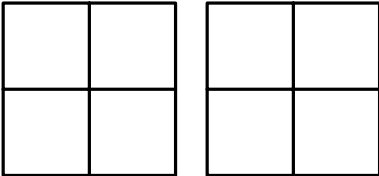
$-3$        $4 \times$



Xaf could be \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.

Clue 2

Xaf cannot be put on this Minicomputer with exactly one regular checker and one negative checker.



Who is Xaf? \_\_\_\_\_

## Match – No Match

Two players, Match and No Match, play a game with two coins. They toss the two coins together and observe the way the coins land. For example:



Match



No Match

Match gets a point.

No Match gets a point.

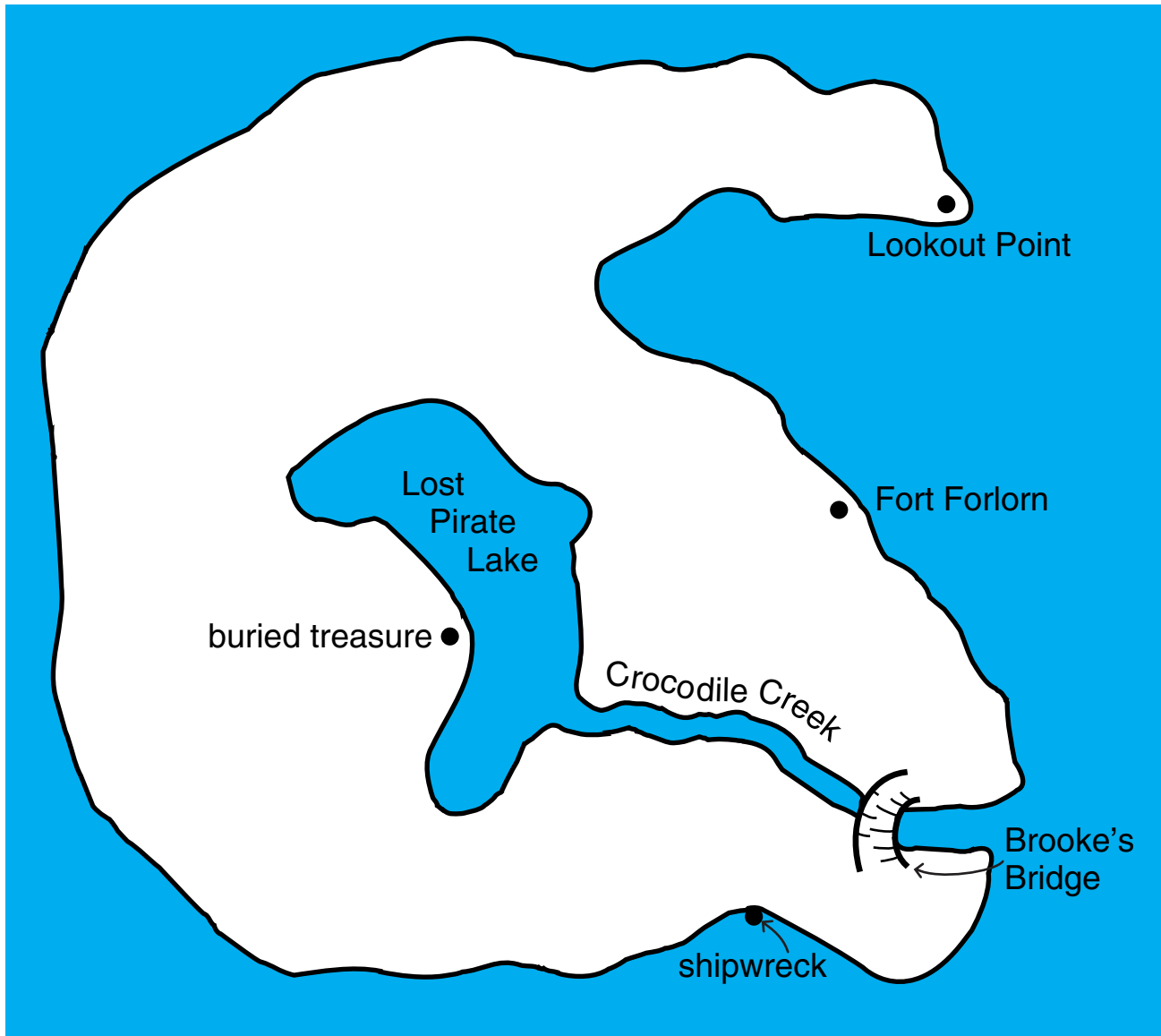
Is this a fair game? Explain.

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Suppose one of the coins is replaced with a two-headed coin. Then one coin has heads on both sides and the other coin still has a head side and a tail side. Match and No Match play the same game with these two coins.

Is this a fair game? Explain.

# SKULL ISLAND



Draw a zig-zag path as short as possible between the places listed below. (You cannot go through any water.)

Then measure in centimeters the length of each zig-zag path.

Fort Forlorn and shipwreck \_\_\_\_\_cm

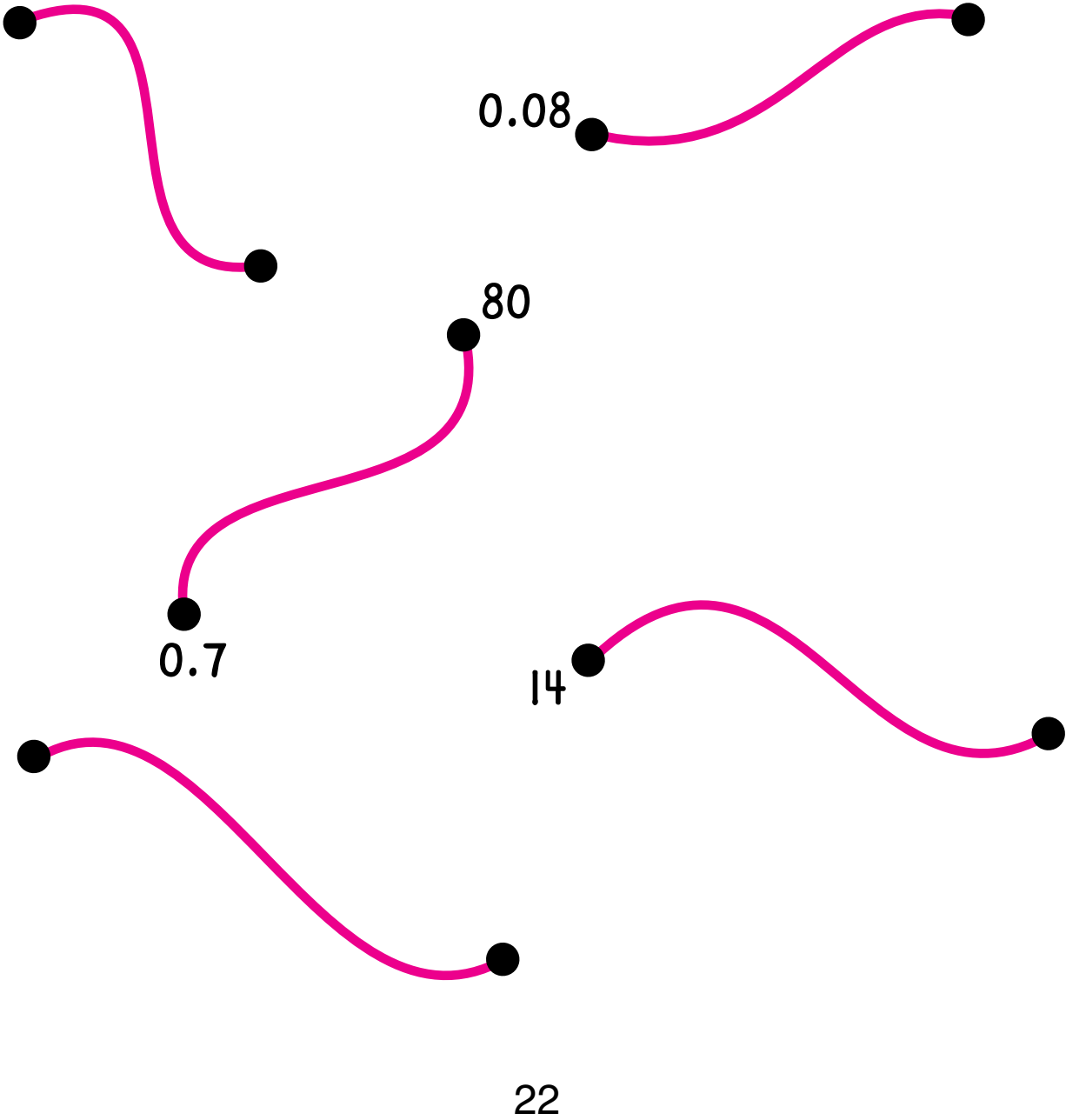
Lookout Point and Fort Forlorn \_\_\_\_\_cm

Fort Forlorn and buried treasure \_\_\_\_\_cm

Lookout Point and shipwreck \_\_\_\_\_cm

Two numbers can be joined by a red cord  
if and only if  
their product is 56.

Label the dots.

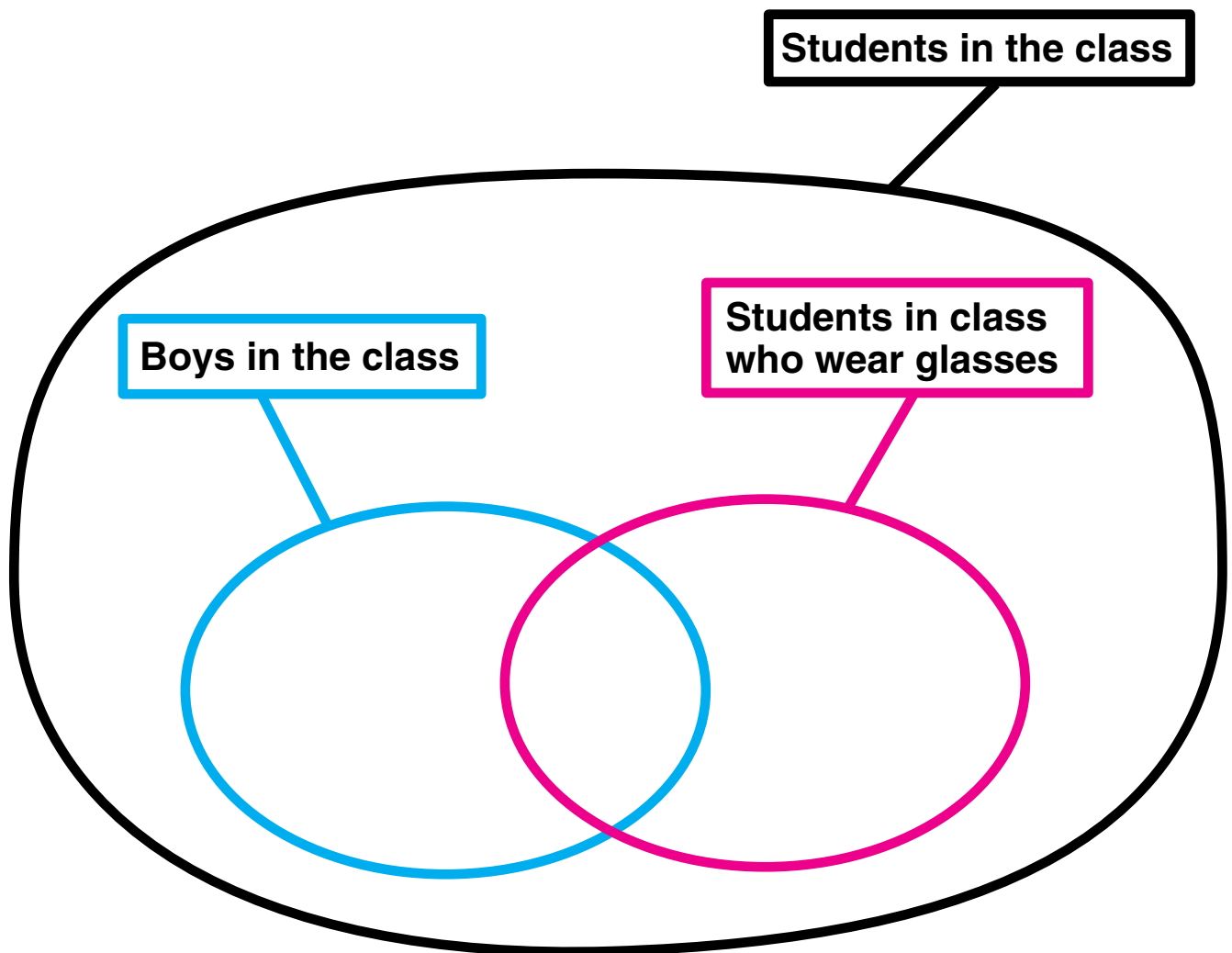


There are 20 students in the class.

6 boys in the class do not wear glasses.

11 students in the class are boys.

7 students in the class wear glasses.



How many boys in the class wear glasses? \_\_\_\_\_

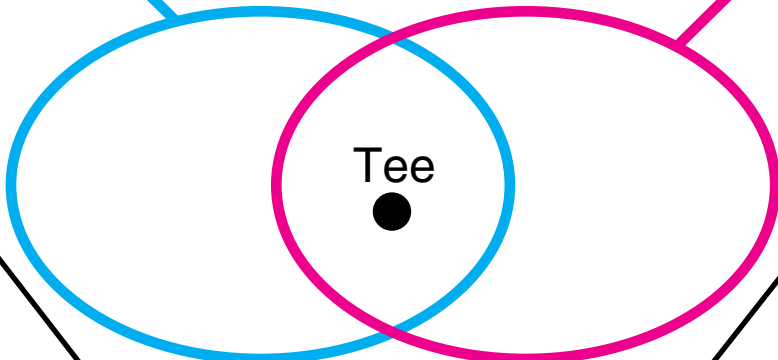
How many girls are there in the class? \_\_\_\_\_

How many girls in the class do not wear glasses? \_\_\_\_\_

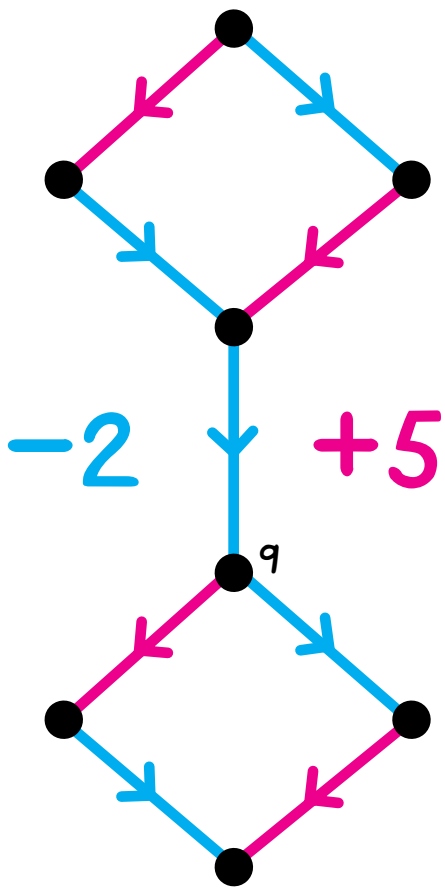
Tee is a secret number.

Positive prime numbers

Less than 20



Tee is in this arrow picture.



$$\boxed{-} \boxed{3} \boxed{=} \dots$$

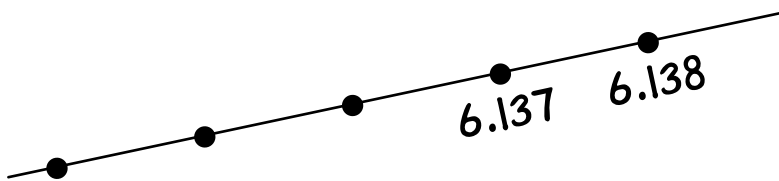
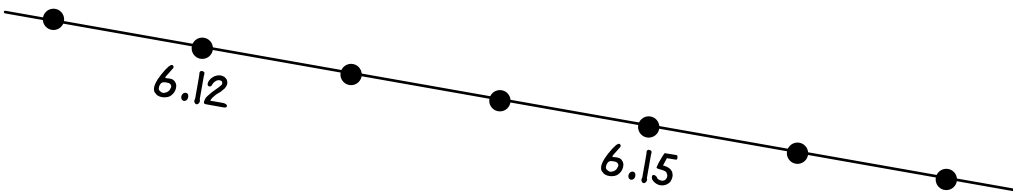
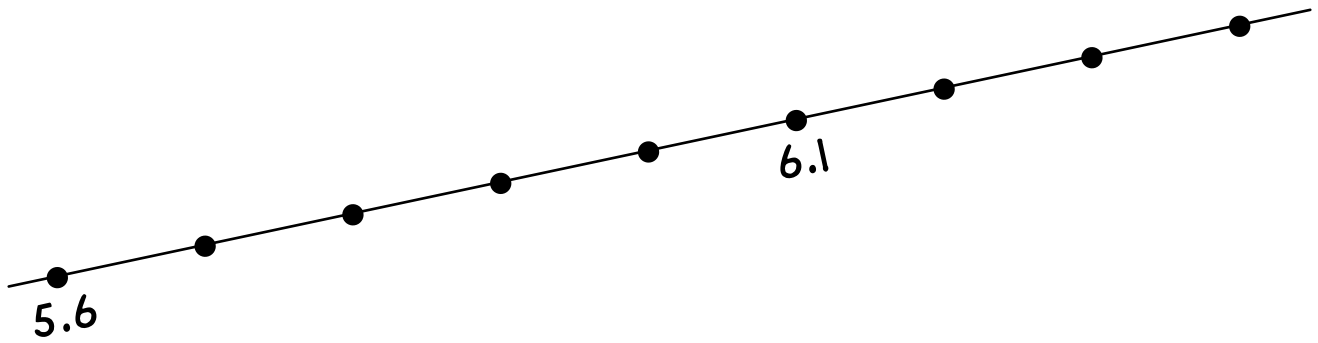


Who is Tee? \_\_\_\_\_

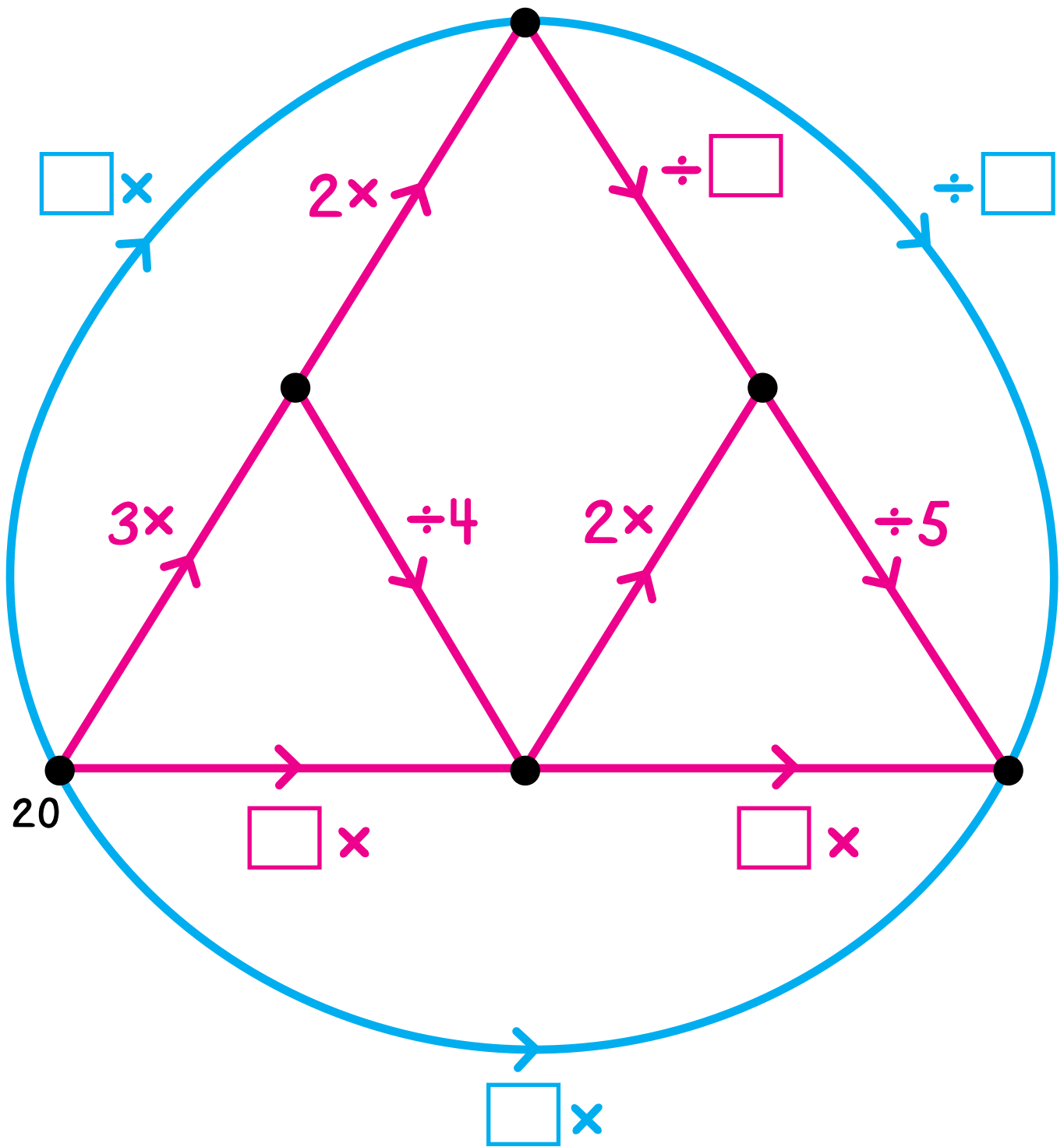


Label the dots on each number line.

Then put a red dot on each line for 6.1375.



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



Put either a regular checker or a ③-checker on each Minicomputer to show each of these numbers.

|  |   |
|--|---|
|  | ⑤ |
|  |   |

= 28

|  |   |
|--|---|
|  |   |
|  | • |

|   |   |
|---|---|
| • | • |
| • |   |

= 50

|   |  |
|---|--|
| • |  |
|   |  |

= 20

|   |  |
|---|--|
| • |  |
|   |  |

|  |  |
|--|--|
|  |  |
|  |  |

= 104

|   |  |
|---|--|
| ⑧ |  |
|   |  |

= 70

|  |   |
|--|---|
|  | • |
|  |   |

|   |  |
|---|--|
| • |  |
|   |  |

= 52

|   |  |
|---|--|
|   |  |
| • |  |

|  |   |
|--|---|
|  | • |
|  | • |

= 55

|  |   |
|--|---|
|  |   |
|  | • |

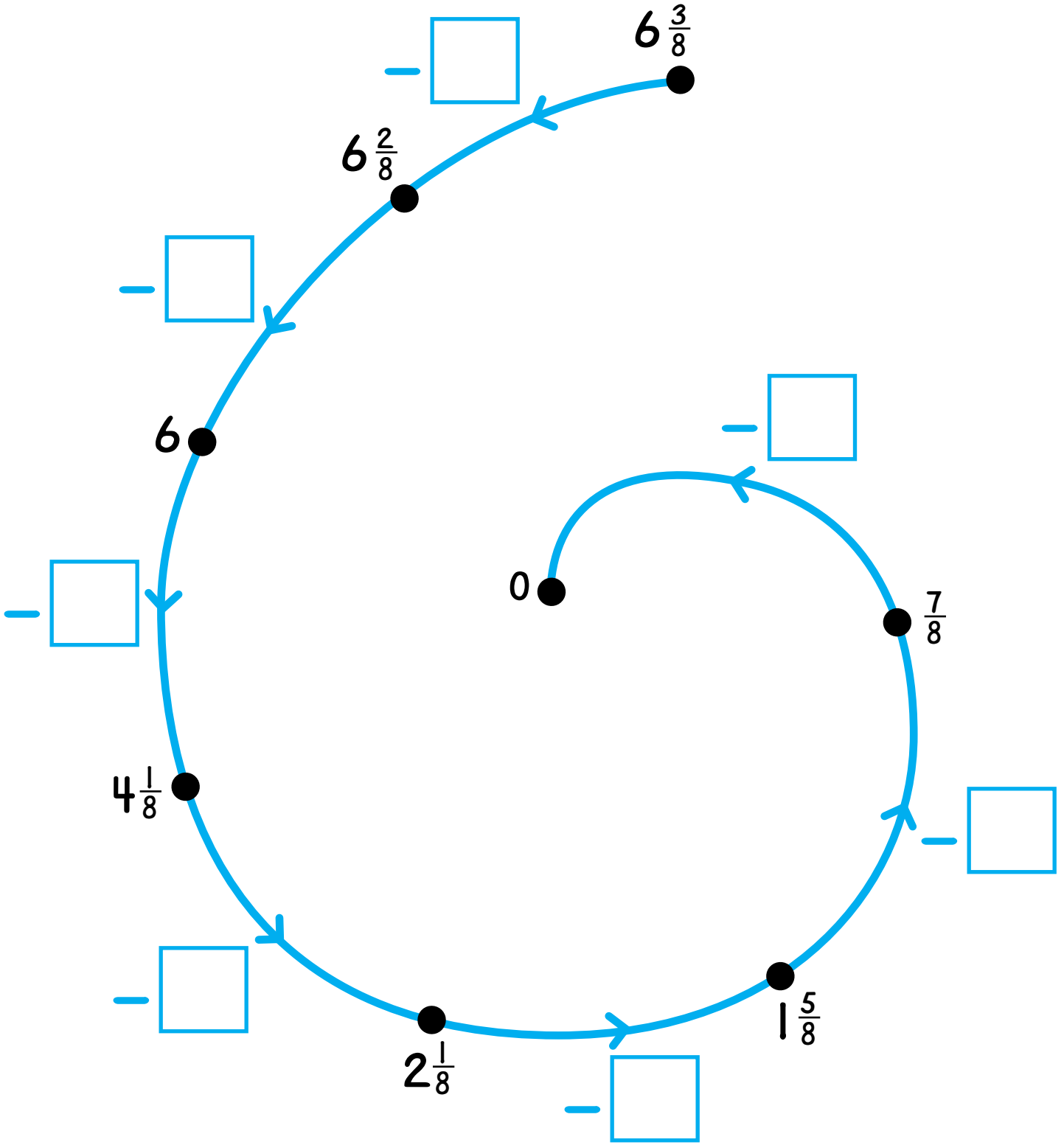
|   |  |
|---|--|
|   |  |
| ⑤ |  |

|  |  |
|--|--|
|  |  |
|  |  |

= 220

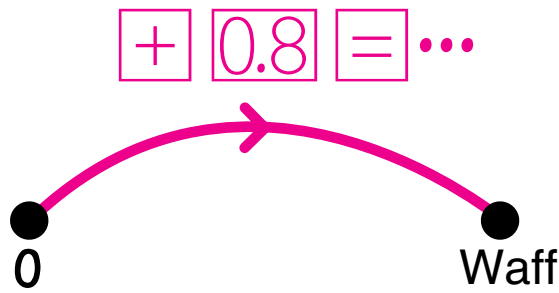
# Wipe-Out

Fill in the boxes for the arrows.



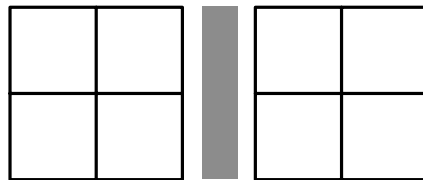
Waff is a secret number.

Clue 1



Clue 2

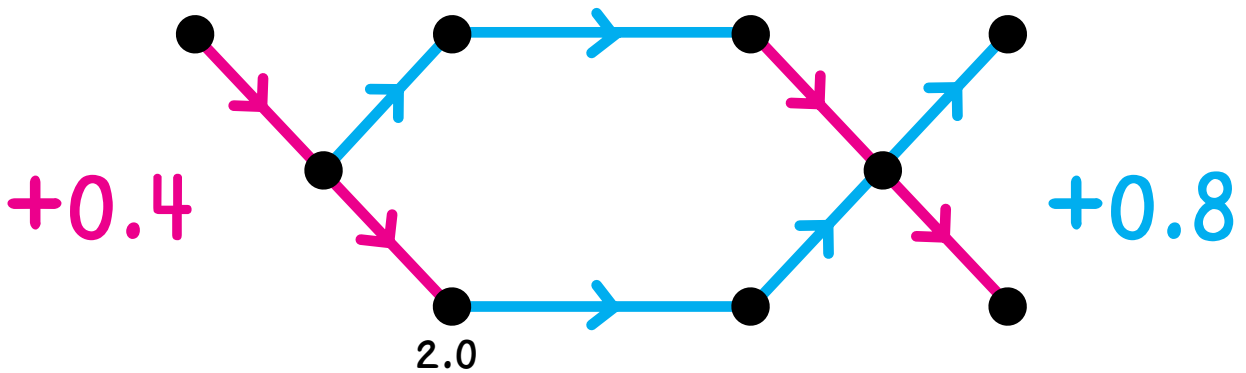
Waff can be put on this Minicomputer with exactly two regular checkers, one on each board.



Waff could be \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.

Clue 3

Waff is in this arrow picture.



Who is Waff? \_\_\_\_\_

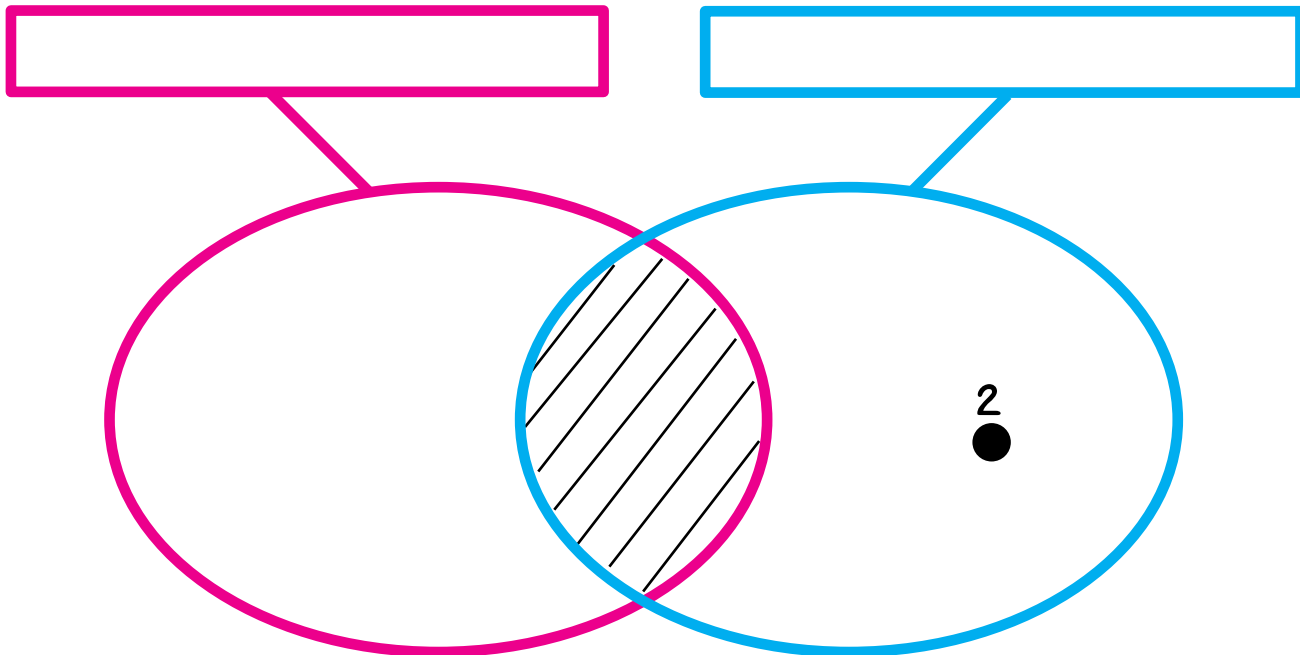
The red label is one of these:

The blue label is one of these:

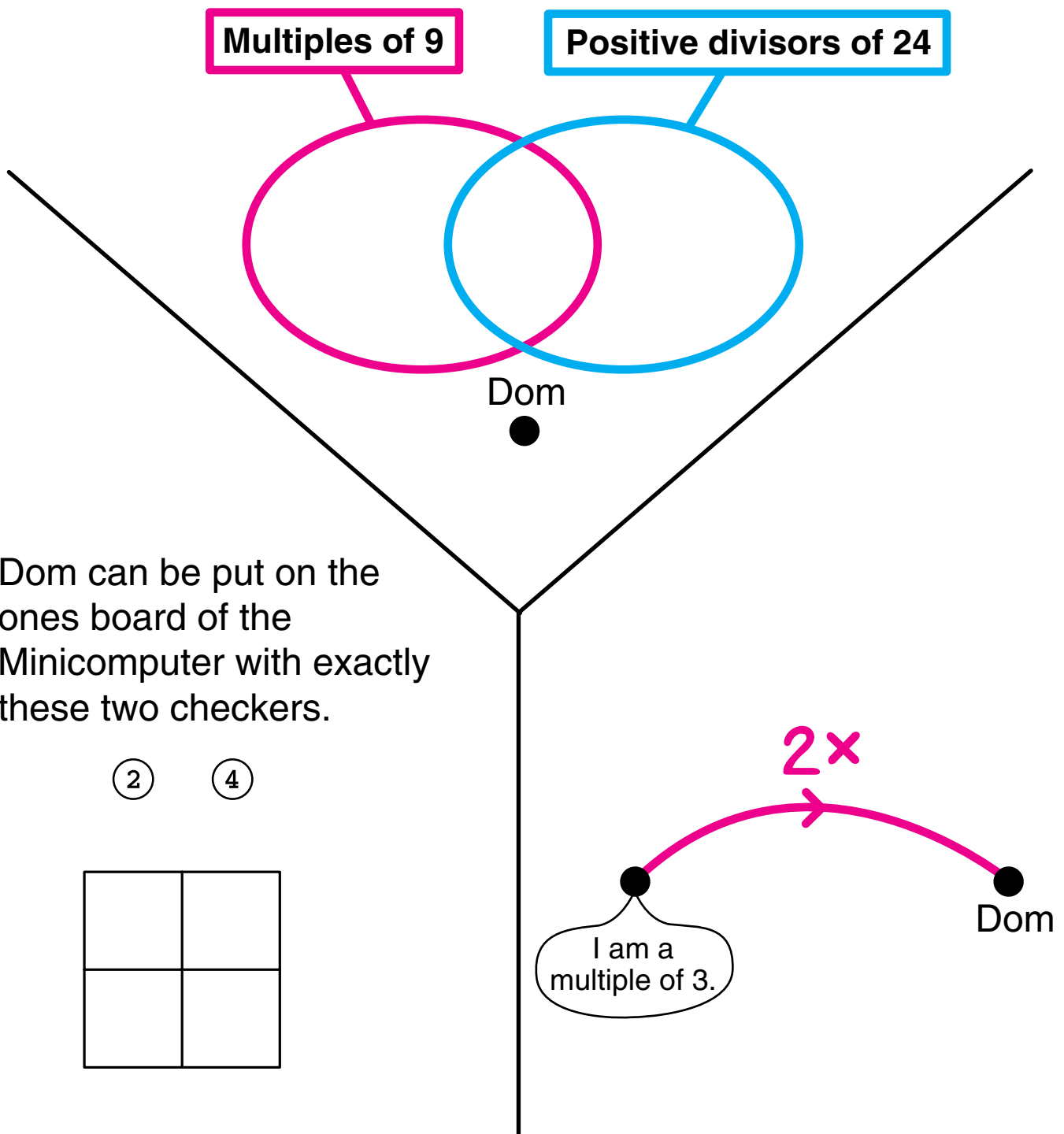
|   |
|---|
| <b>Less than 20</b>                           |
| <b>Greater than <math>\widehat{10}</math></b> |
| <b>Multiples of 2</b>                         |
| <b>Multiples of 4</b>                         |
| <b>Positive divisors of 18</b>                |
| <b>Positive divisors of 20</b>                |

|   |
|---|
| <b>Less than 20</b>                           |
| <b>Greater than <math>\widehat{10}</math></b> |
| <b>Multiples of 2</b>                         |
| <b>Multiples of 4</b>                         |
| <b>Positive divisors of 18</b>                |
| <b>Positive divisors of 20</b>                |

Label the strings.

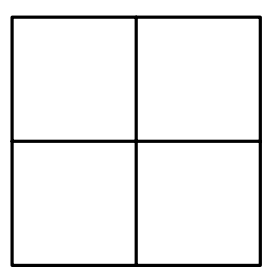


Dom is a secret number.



Dom can be put on the ones board of the Minicomputer with exactly these two checkers.

②    ④



Who is Dom? \_\_\_\_\_

Write a name for each number using exactly four 4s and no other digits. You may use the following symbols as often as you wish.

**+**   **-**   **( )**   **×**   **÷**

The number 6 is done for you.

\_\_\_\_\_ = 0

\_\_\_\_\_ = 1

\_\_\_\_\_ = 2

\_\_\_\_\_ = 3

\_\_\_\_\_ = 4

\_\_\_\_\_ = 5

$((4+4) \div 4) + 4$  = 6

\_\_\_\_\_ = 7

\_\_\_\_\_ = 8

\_\_\_\_\_ = 16

\_\_\_\_\_ = 48

\_\_\_\_\_ = 17

\_\_\_\_\_ = 60

\_\_\_\_\_ = 80