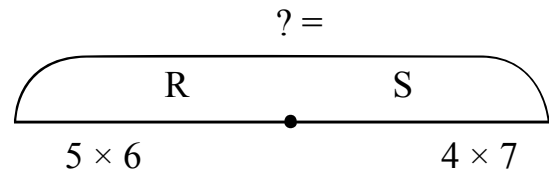


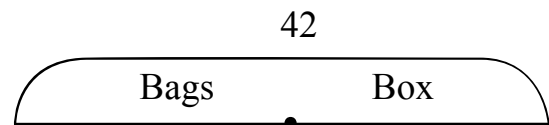
Lesson 9

1 Complete the drawings and write expressions to solve the word problems:

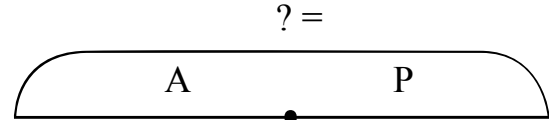
- a) There are 5 cookies in each of 6 round boxes and 4 cookies in each of 7 square boxes. How many cookies are there in all the boxes?



- b) Jack puts 5 pieces of candy into each of 6 gift bags and the rest of the candy into a box. How many pieces of candy did he put in the box if he had a total of 42 pieces in the beginning?



- c) There are 3 apples in each of q apple baskets and 5 pears in each of w pear bags. How many fruit are in total?



- d) There are a total of 75 apples packed in green bags and a basket. Each of the 7 green bags contains 5 apples. How many apples are in the basket?

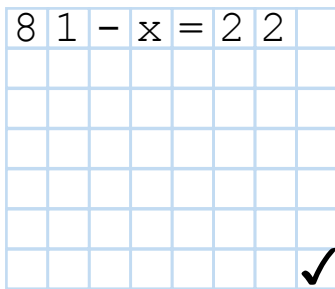


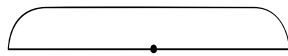
- e) There are m apples in total packed in green bags and a basket. Each of k green bags contains 5 apples. How many apples are in the basket?

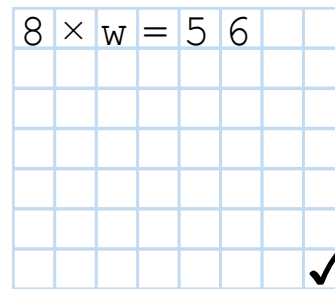


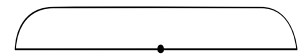
2

Pick the diagram that represents each equation. Use the diagram to solve the equations and then check your answer.

$$81 - x = 22$$




$$8 \times w = 56$$


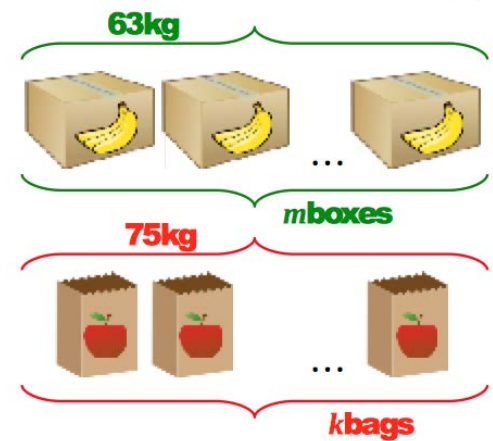


Sense and Nonsense

3

There are 63 kg of bananas packed in m identical boxes. There are 75 kg of apples packed in k identical bags.

Explain the expressions that produce meaningful results and identify the ones that do not.



Expression	Meaning
$63 \div m$	Mass of bananas in...
$63 \div k$	Nonsense!
$63 \div m \times 7$	
$75 \div k$	
$75 \div m \times w$	
$63 + 75$	
$63 + m$	
$m + k$	

4 Complete:

$1 \text{ cm} \times 3 = \underline{\hspace{2cm}}$

$1 \text{ kg} \times 3 = \underline{\hspace{2cm}}$

$1 \text{ apple} \times 3 = \underline{\hspace{2cm}}$

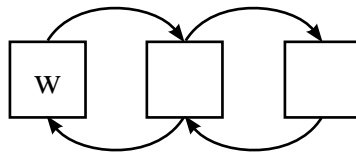
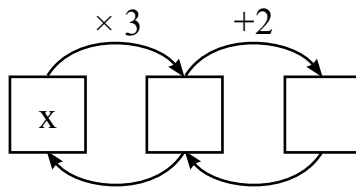
$x \times 3 = \underline{\hspace{2cm}}$

$1 \text{ min} \times 3 = \underline{\hspace{2cm}}$

$w \times 3 = \underline{\hspace{2cm}}$

5 Analyze and solve the equations, and check your work:

$x \times 3 + 2 = 14$
$x \times 3 = 14 -$
$x \times 3 =$
$x =$
$x =$



$w \div 5 - 3 = 4$
$w \div 5 =$
$w \div 5 =$
$w =$

6 Which expression does each program evaluate?

①: $k \div 2$

②: $12 - \textcircled{1}$

①: $m \times 4$

②: $z + \textcircled{1}$

③: $\textcircled{2} - 9$

①: $118 + 31$

②: $282 + \textcircled{1}$

①: $v - 4$

②: $12 - \textcircled{1}$

③: $\textcircled{2} + a$

To reconstruct an expression work **backwards** and replace the result of each operation with the operation itself.

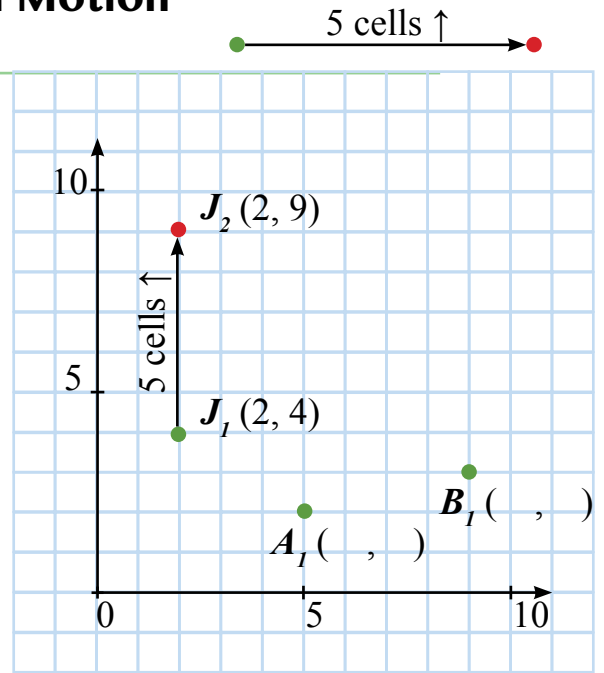
Coordinates and Motion

9 Moving point J_1 five cells up produces point J_2 .

What do you notice about the coordinates of the points J_1 and J_2 ?

The motion of the points A_1 and B_1 produces points A_2 and B_2 respectively. Plot the points A_2 and B_2 and find their coordinates.

What do you notice about the coordinates of A_2 and B_2 ?

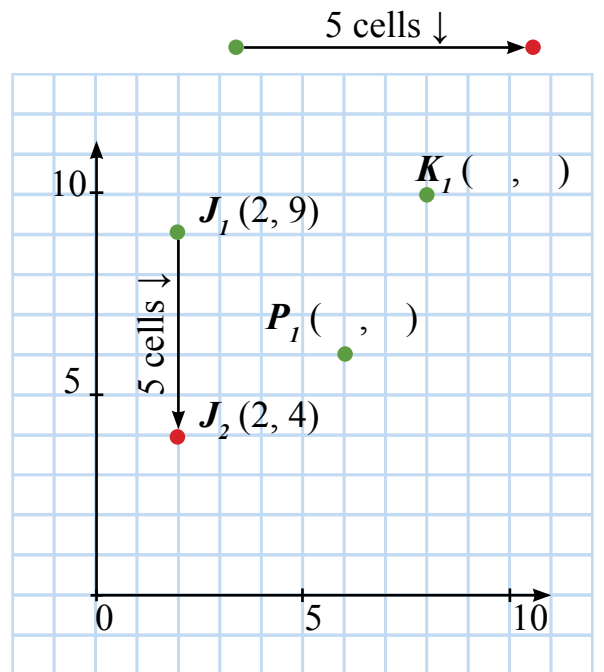


7 Moving point J_1 five cells down produces point J_2 .

What do you notice about the coordinates of the points J_1 and J_2 ?

The motion of the points K_1 and P_1 produces points K_2 and P_2 respectively. Plot the points K_2 and P_2 and find their coordinates.

What do you notice about the coordinates of K_2 and P_2 ?

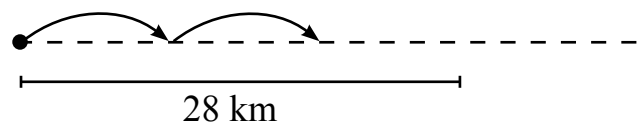


8 Solve the word problems:

- a) Students hiked 5 km every hour.
How far did they go in 3 hours?
- _____

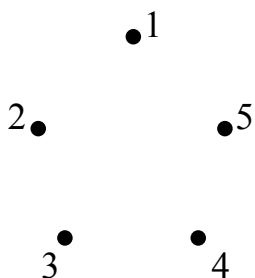


- b) A river flows 7 km in an hour. How long will it take a raft to drift 28 km downstream?
- _____

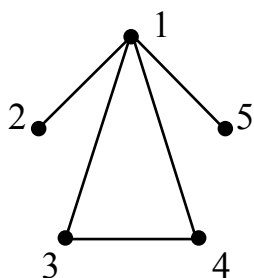


10 Meanwhile, our mice discovered new facts about the inhabitants of the Cat Island who like to visit each other.

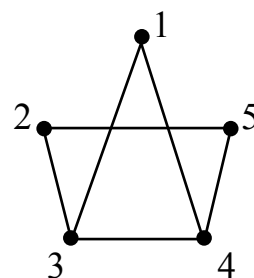
Each of the five cats is friends with all the others



Cats that visit each other in the winter

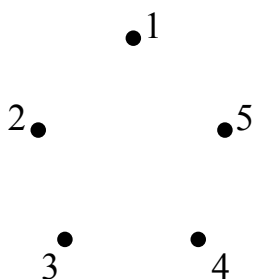


Cats that visit each other in the summer

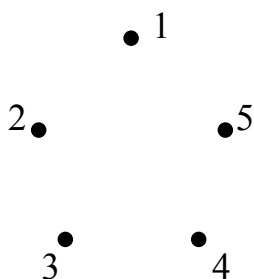


Finish the graphs:

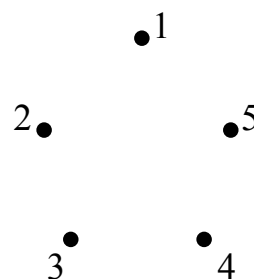
Cats that do not visit each other in the winter



Cats that do not visit each other in the summer



Cats that do not visit each other



11 There are two cat tribes living on the island. The cats from the South tribe always lie, while the cats from the North tribe always tell the truth. JM met cats *Miayu* and *Mrrrr* from the two different tribes. After he asked them if they were married he got the following answers:

Miayu: We are both married.

Mrrrr: I am married.

Which of the two answers is a lie? _____

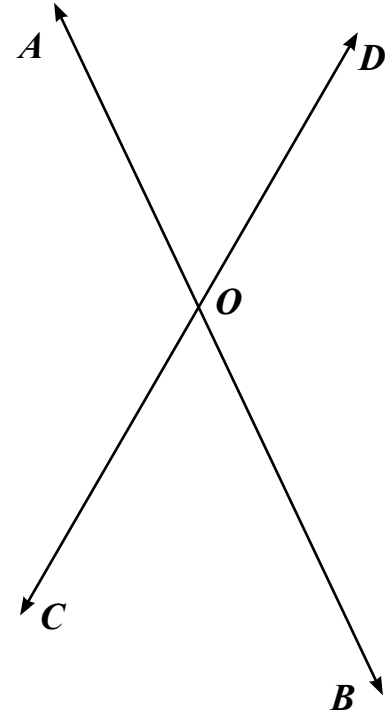
To which tribe does Mrrrr belong? _____

Angles

A straight line splits a plane into two **half-planes**.

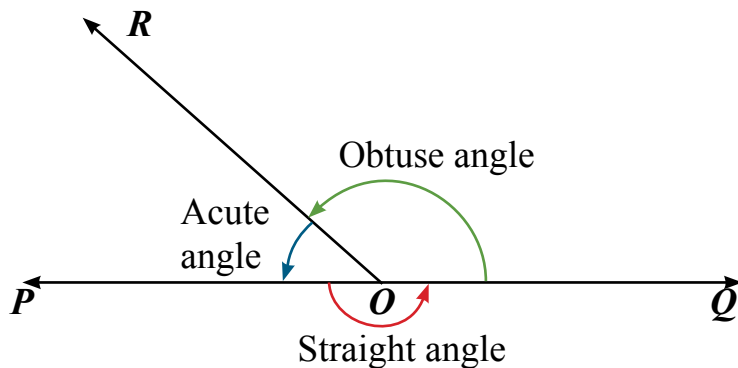
Two intersecting lines split it into four parts.

We call each part an **angle**



The sides of an angle are two rays with a common origin.

This point is called a **vertex**.



A half-plane is also called a **straight angle**.

Ray [**OR**) splits a half-plane into two unequal parts:

$\angle POR$ and $\angle QOR$.

The smaller angle is called an **acute angle**.

The larger angle is called an **obtuse angle**.

Ray [**ST**) splits a half-plane into two equal parts:

$\angle NST = \angle TSM$.

Such equal angles are called **right angles**.

