Lesson 11

1 Solve the word problems:

a) Four loaves of bread cost w dollars. How much does 1 loaf cost?

_____

b) Four loaves of bread cost w dollars. How much do 7 loaves cost?

_____

c) Four loaves of bread cost w dollars. How many loaves may be bought with q dollars?

_____

d) Jessica hikes 6 km in one hour. How long will it take her to walk through a 42 km trail?

_____

e) A biker moves 9 km in one hour. How far will he go in 3 hours?

_____

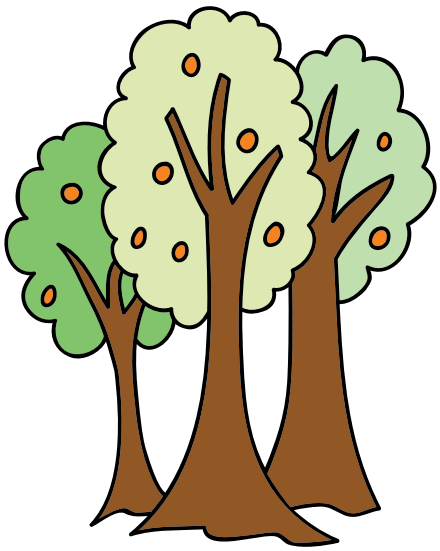
2 Divide with or without a remainder:

$6\overline{)38}$

$9\overline{)27}$

$6\overline{)44}$

$8\overline{)75}$



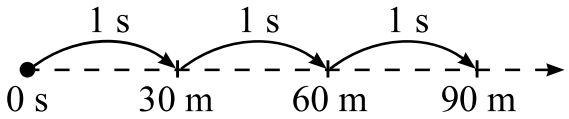
Speed

The distance that an object moves in a unit of time is called **speed**.

3 Explain the meanings of the following statements:

a) The speed of a fox is 15 km/h.

b) The speed of a swift is 30 m/s.



c) The speed of a snail is 12 cm/h.

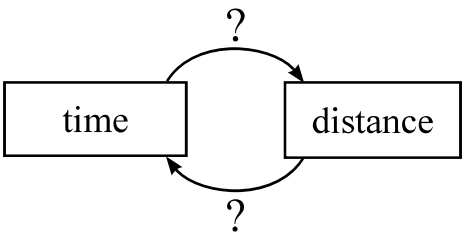
d) The Earth moves about the Sun 30 km/s.

e) An express train in Shanghai moves at 500 km/h.

4 A raft is moving down a river. The speed of the river flow is **6 kilometers per hour: v = 6 km/h.** Fill in the table:

Time: t	1 h	2 h		4 h		8 h	
Distance: s			18 km		36 km		60 km

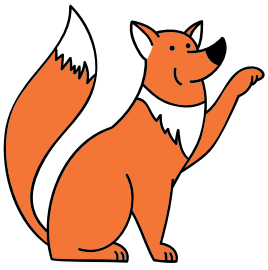
5 Which operation did you use to obtain the distance from the time?

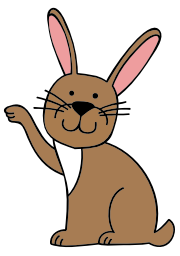


What is the inverse operation? What does it allow us to find?

Distance = Time × Speed

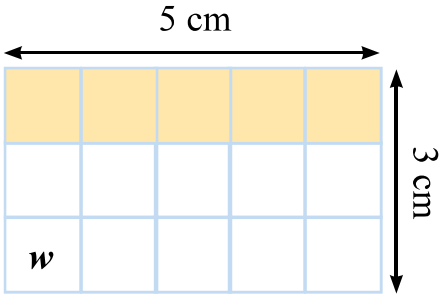
6 A fox moved 18 km in 2 hours. A rabbit moved 21 km in 3 hours. Which of them was moving faster?



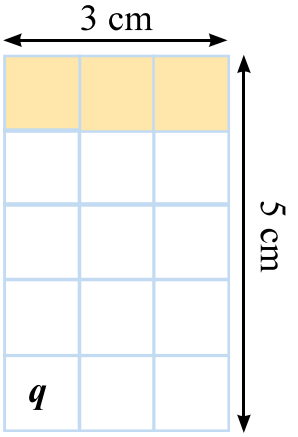


Commutative and Distributive Properties of Multiplication

The areas of rectangles w and q are the same.



$S = 5 \times 3 = 15\ (cm^2)$



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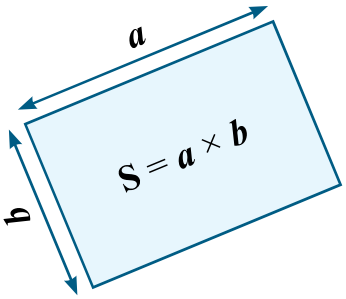
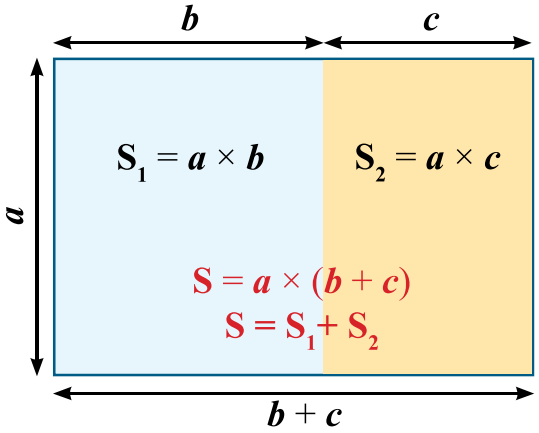


1 cm²

Properties of Multiplication:

Commutative: $a \times b = b \times a$

Distributive: $a \times (b + c) = a \times b + a \times c$



7

Remove the parentheses using the distributive property of multiplication. Calculate the final answer where possible.

$5 \times (10 + b) =$ _____ $7 \times (10 + 5) =$ _____

$8 \times (x + 2) =$ _____ $(8 + 10) \times 4 =$ _____

8

Write the compositions of the numbers in 10's and 1's:

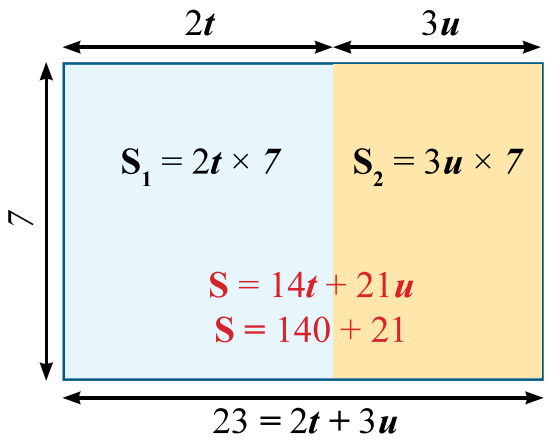
$75 = \square\, t + \square\, u$ $34 = \square\, t + \square\, u$ $40 = \square\, t + \square\, u$

$91 = \square\, t + \square\, u$ $30 = \square\, t + \square\, u$ $5 = \square\, t + \square\, u$

9 Analyze the procedure for multiplying 23 × 7:

		t	u
		2	3
+			7
	2	1	u
1	4	t	
1	6	1	

	1	2	
		2	3
+			7
1	6	1	



10 Multiply:

		2	3
	×		8

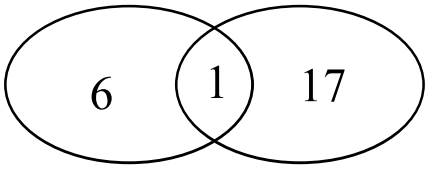
		3	1
	×		6

		4	7
	×		5

		1	9
	×		4

11 Counting elements in sets:

Bugs ...with wings ...green



How many bugs are green but did not have wings?

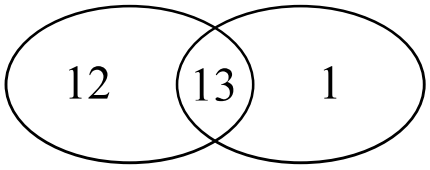
How many bugs are either with wings or green?

How many bugs have wings but are not green?

How many bugs are green?

How many bugs had wings?

Shoes ...green ...boots



How many people have boots?

How many people have shoes?

How many people have green boots?

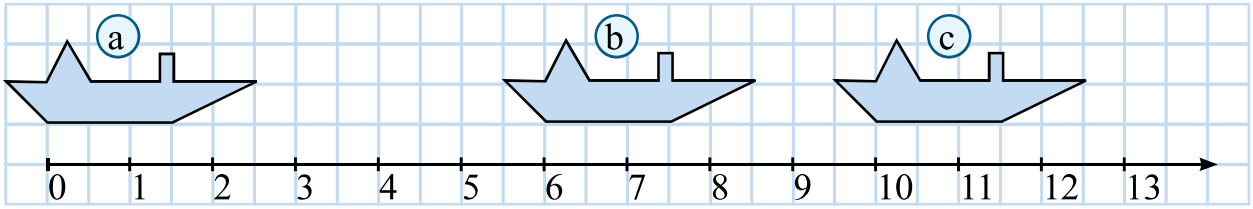
How many shoes are either green or boots but not both?

How many people have green shoes that are not green?

How many people have green shoes?

12

Initially, the boat has coordinate 0 on the numeric ray (position ***a***). First, it moves to position ***b***, then to the position ***c***:



How far did the boat move from position ***a*** to position ***b***?

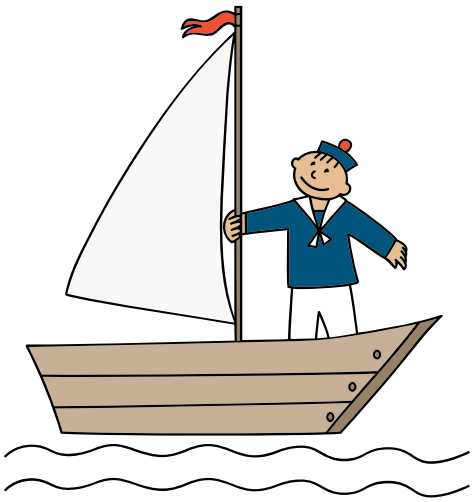
_____ units = _____ cells

How far did the boat move from position ***b*** to position ***c***?

_____ units = _____ cells

How far did the boat move from position ***a*** to position ***c***?

_____ units = _____ cells

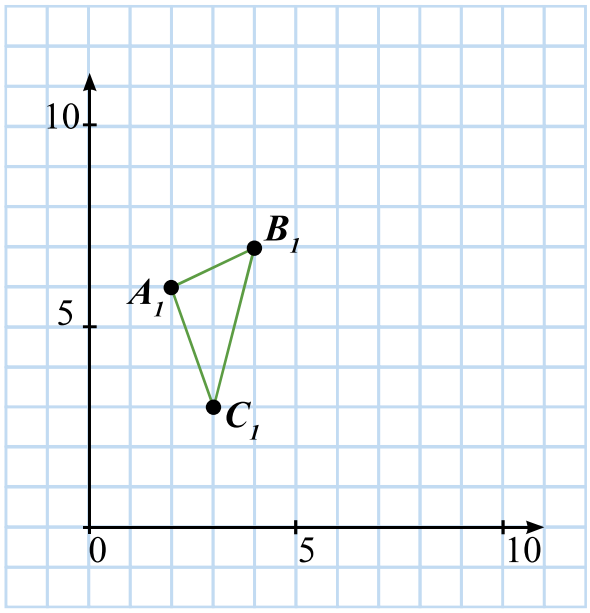


All parts of the boat move the same distance, together.

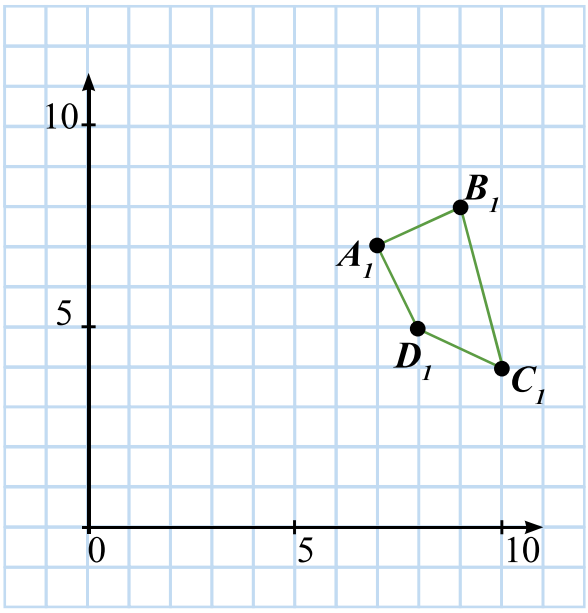
13

Move the shapes according to instructions:

5 cells →



← 4 cells



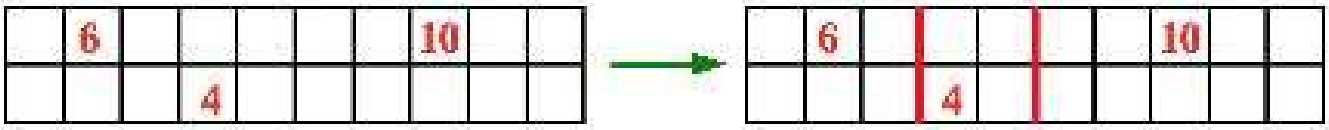
14

Once a year our mice are waiting for a very important guest: The Great-Grand Mother. They know the Great-Grand Mother likes when the whole floor in the mouse hole is covered with beautiful rugs. Rugs vary in size, but The Great-Grandma requested that:

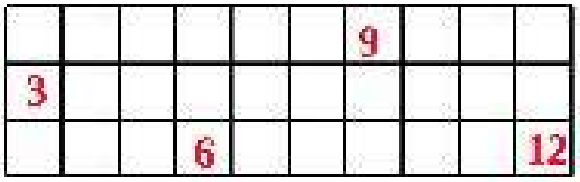
1. **All rugs should be rectangular,**
2. **They can't overlap with each other, and**
3. **The entire floor surface should be paved with rugs.**

After her visit, the mice took rugs out and stored them in a dry cold place, where they are waiting for the next Great-Grand-Ma's visit. Each year it takes a lot of time to cover the floor with the rugs, so last year LJ came up with the idea to write the size (area) of each rug on the floor. So next year it will be easier to put them back again.

But when mice the started to prepare for Great-Grand-Ma's next visit, they realized that it is not as easy to put the rugs back in their original places. Foxy Tail and Little Joe have been responsible for the rugs this year. Their job was easy in the first narrow corridor:

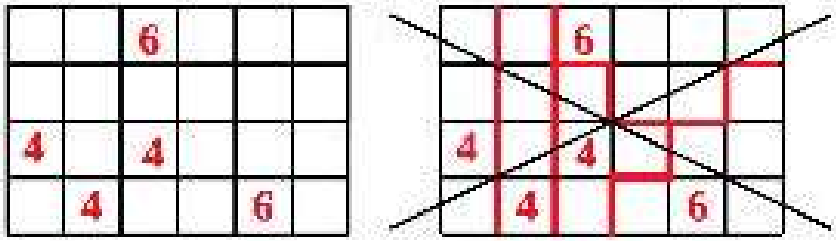


and not too hard in the second one:



But when they started to put rugs in the bedrooms, this task appeared to be more complicated....You remember the rules?

Can you help Little Joe and Foxy Tail in this room?



And in that one? (There are 2 solutions here!)