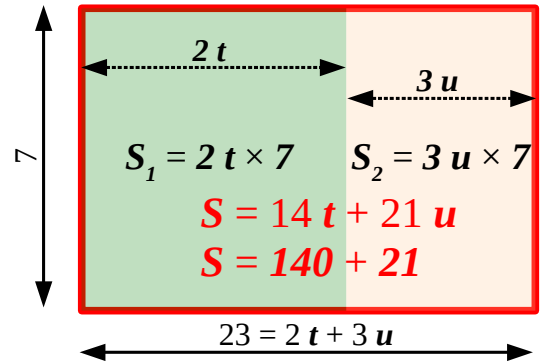
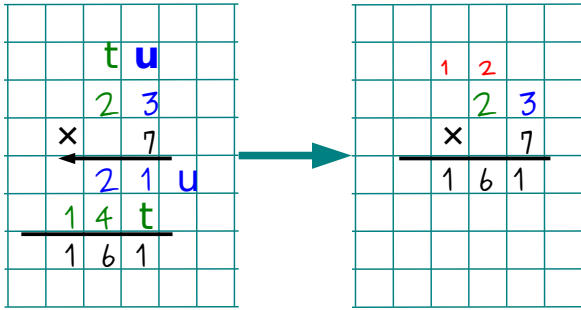


Lesson № 6

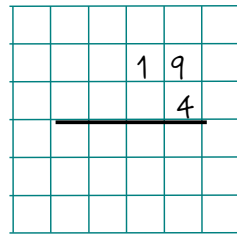
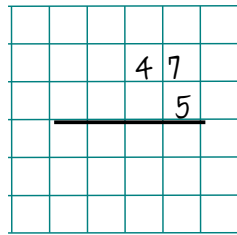
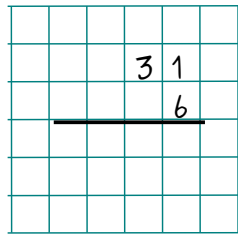
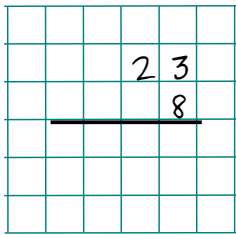
1

Analyze the procedure to multiply 23×7 :



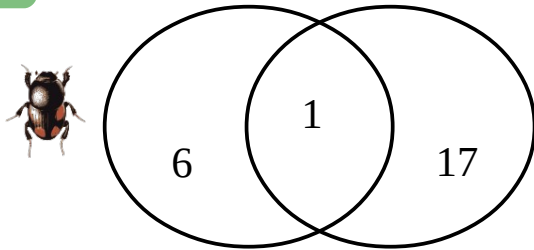
2

Multiply:

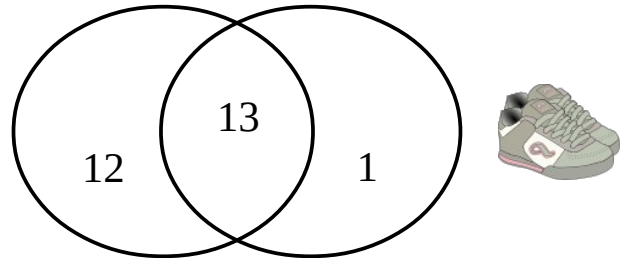


3

... with wings ... green



... green ... boots



How many bugs were green but did not have wings?

How many people had boots?

How many bugs were either with wings or green?

How many people had shoes?

How many bugs had wings but were not green?

How many people had green boots?

How many bugs were green?

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

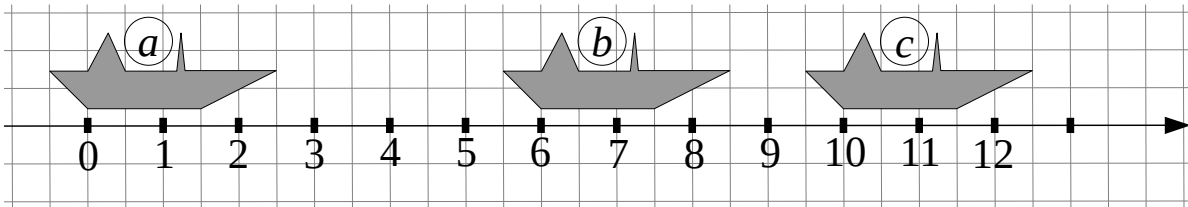
How many bugs had wings?

How many people had green shoes that were not boots?

How many people had green shoes?

4

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



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

_____ units = _____ cells

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

_____ units = _____ cells

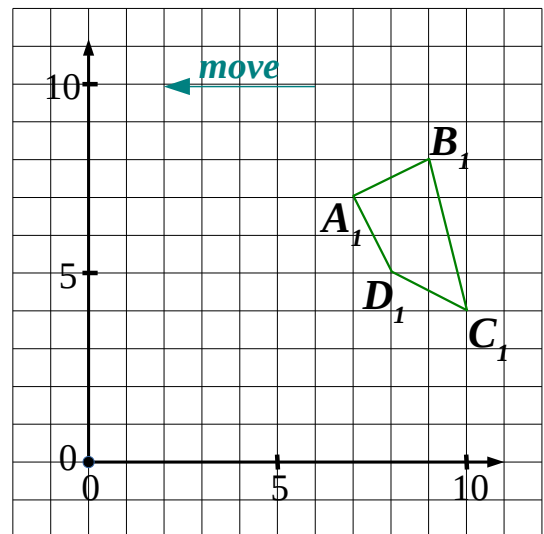
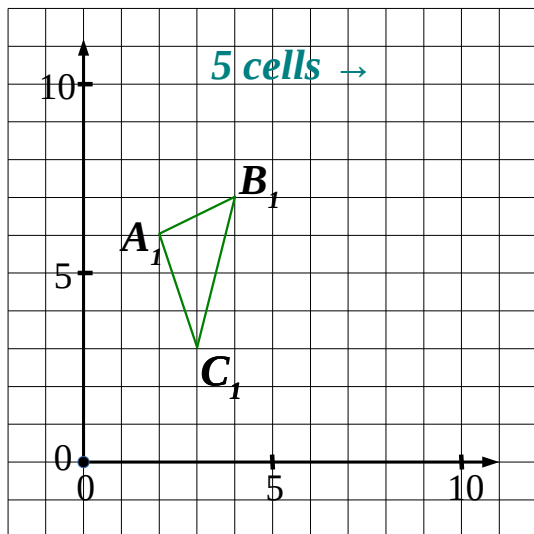
How far did the boat move from the position **a** to the position **c**?

_____ units = _____ cells

Each point of the boat moves the same

5

Move the shapes according to the instructions:



6

A. There are b liters of juice in 5 identical cans. How many liters of juice in 12 such cans?

B. W cans of juice cost \$20. How much would 5 such cans cost?

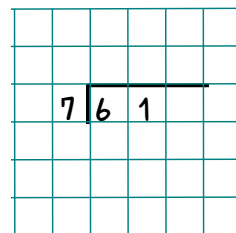
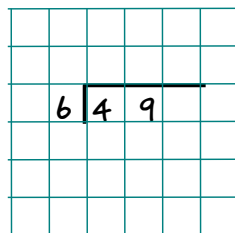
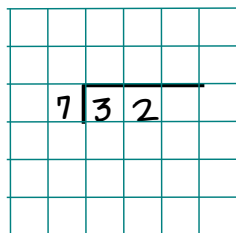
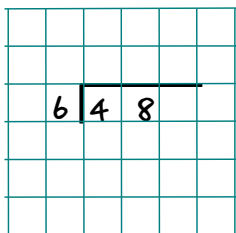
C. A bag holds c kg of barley. Another bag holds three times as much barley as the first one. How much more barley are in the second bag than in the first one?

D. A truck delivered m kg of potatoes packaged 20 kg per box and n kg of carrots packaged 30 kg per box. How many boxes of vegetables did the truck deliver in total?

E. Jack needs to pack 5 toy dinosaurs per gift bag. He has 43 dinosaurs. How many bags can he pack?

7

Divide with or without a remainder:



8

There was a burglary in the Cat Island cheese factory last Monday. The Cat Island police captured and questioned three mice Little Joe, Foxy Tail and Pop Eye.

PY said: *I am innocent.*

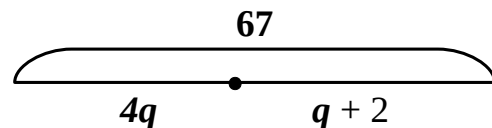
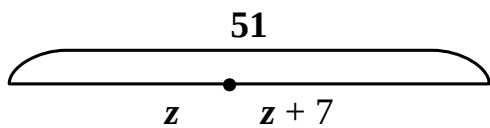
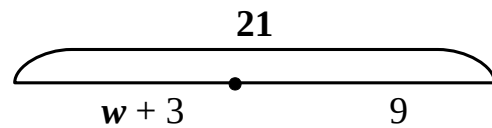
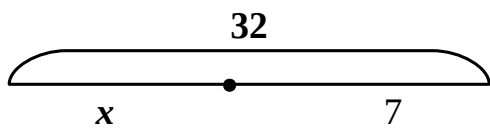
LJ said: *FT did not steal.*

FT said: *LJ stole it.*

Later on, the police found that two of them lied. Who stole the cheese? _____

9

Write the equations according to the drawings:



10

There was a burglary in the Cat Island Cheese Factory again on Monday. Three suspects: PY, LJ, and JTM were caught and questioned.

PY: *LJ did not steal.*

LJ: *That is true.*

JTM: *PY is innocent.*

Later on the police found out the thief did tell the truth. However, at least one of the brothers was lying. Who was the thief this time?

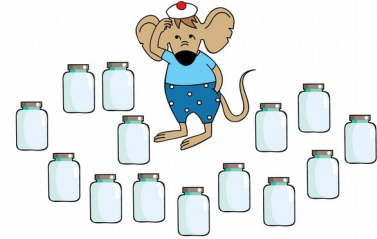
What can and cannot be divided with a remainder.

Compare three problems and their solutions:

Problem 1: *Little Joe needs to distribute 14 cans of milk from the cow farm among the four brothers. How many cans will each one receive?*

Solution: $14 : 4 = 3 \text{ rem } 2$

What does the remainder mean?

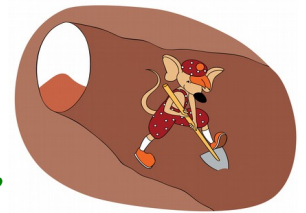


These two cans will remain on the cow farm, probably.

Problem 2: *Foxy tail needs to dig his way to the Cheese Factory, which is 24 m away from his house. He digs 4 meters in one day. How long will it take him to get to the Cheese Factory?*

Solution: $24 : 4 = 6$

So, Foxy tail will dig these 24 meters in 6 days.



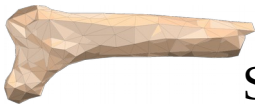
Problem 3: *Foxy tail needs to dig his way to the Cheese Factory, that is 21 m away from his house. He digs 4 meters in one day. How long will it take him to get to the Cheese Factory?*

Solution: $21 : 4 = 5 \text{ rem } 1$

Does remainder mean that Foxy tail can dig 24 meters in 6 days but will never make it to the factory if it is 3 meters closer?

Sometimes dividing with a remainder makes no sense.

Sometimes a whole thing has to be divided into pieces.

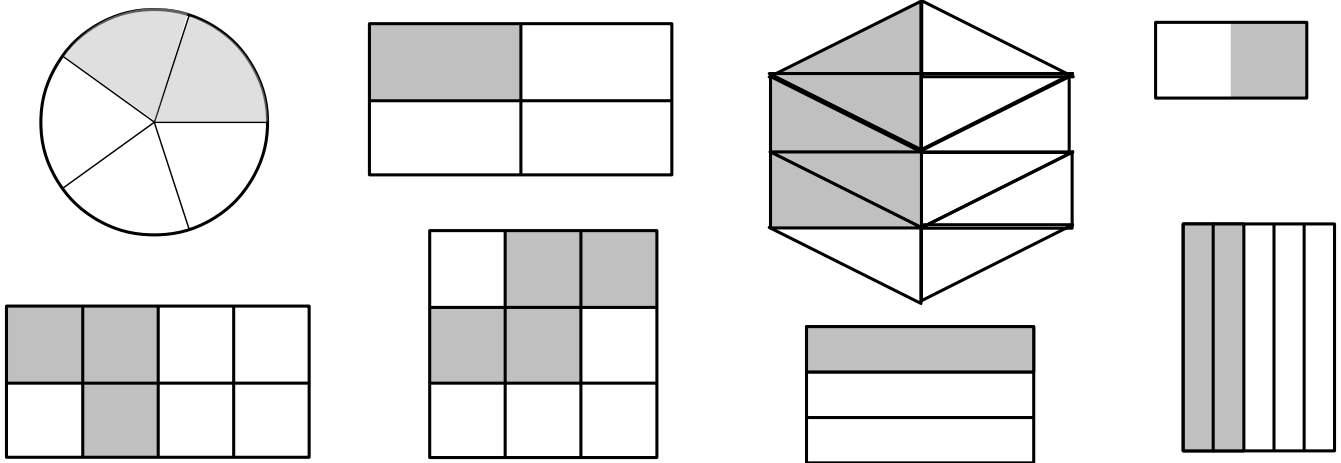


Such pieces are called **fractions**



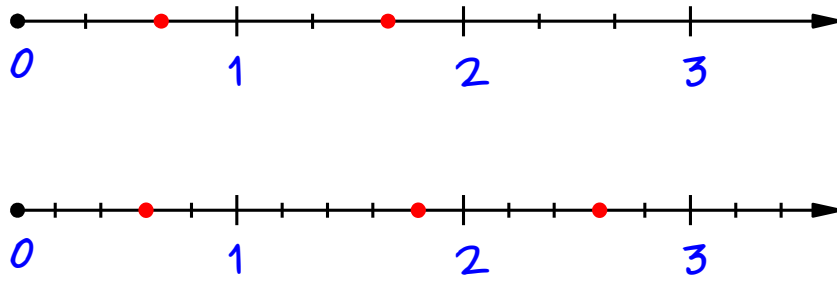
12

Which fractions are represented on the drawings?



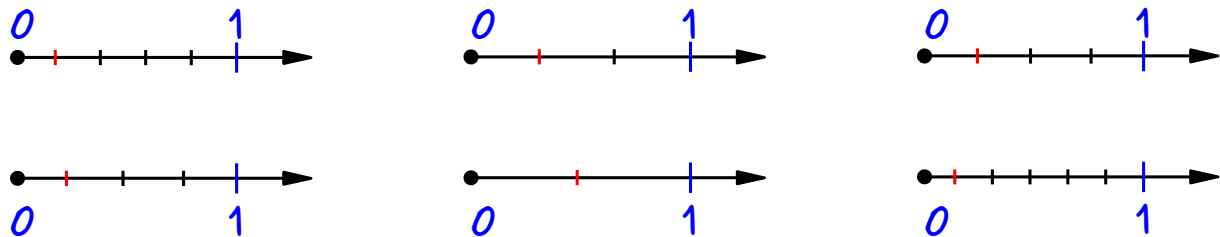
13

Which fractions are marked on the number line?



14

Use the number lines to compare fractions:



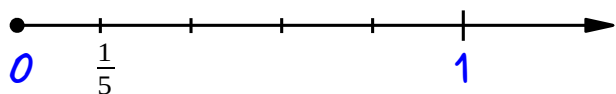
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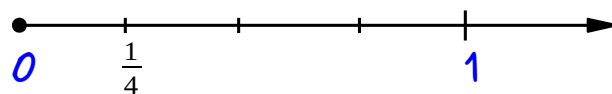
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Dividing a Unit into Equal Parts

17



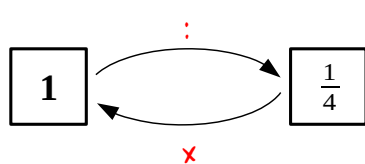
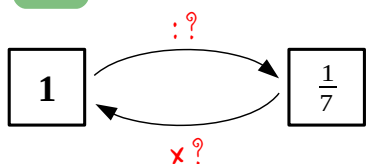
$$\frac{1}{5} = 1 : \square$$



$$\frac{1}{4} = 1 : \square$$

18

Write the operations that produce the following fractions:



$$\frac{1}{2} = 1 : \square$$

$$\frac{1}{3} = 1 : \square$$

$$\frac{1}{4} = 1 : \square$$

$$\frac{1}{5} = 1 : \square$$

$$\frac{1}{2} \times \square = 1$$

$$\frac{1}{3} \times \square = 1$$

$$\frac{1}{4} \times \square = 1$$

$$\frac{1}{5} \times \square = 1$$

19

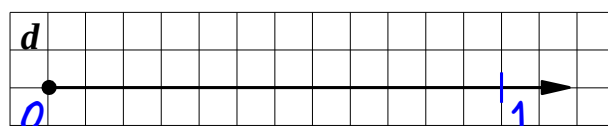
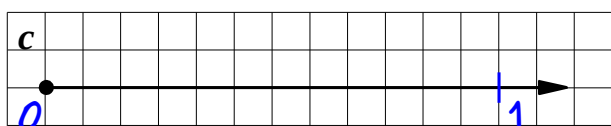
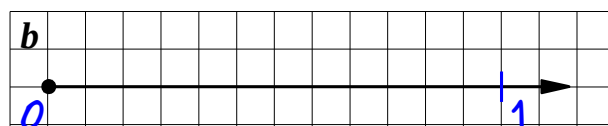
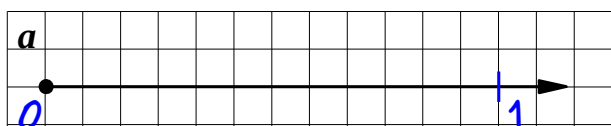
Mark the following fractions on the number rays:

a). $\frac{1}{3}$

b). $\frac{1}{2}$

c). $\frac{1}{6}$

d). $\frac{1}{12}$



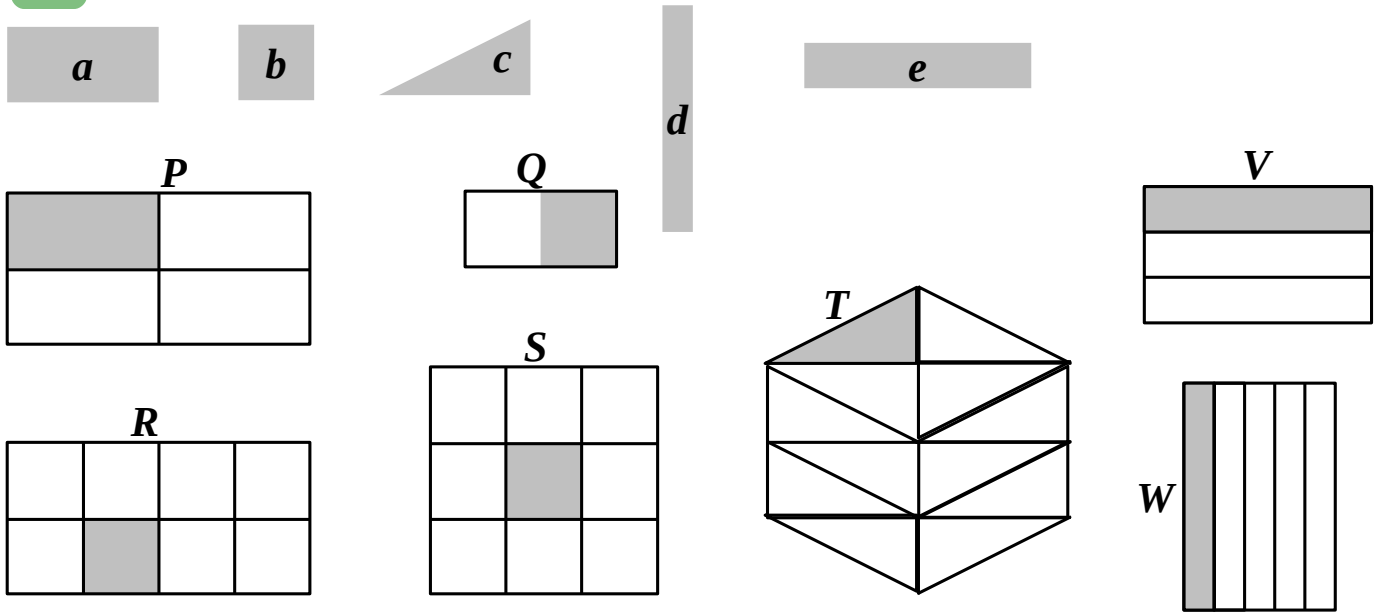
20

List these fractions in the ...

A). ... increasing order: _____

B). ... decreasing order: _____

Measures and Fractions of Areas:



$$P = 4a$$

$$a = \frac{1}{4} P$$

$$Q = \frac{1}{3} b$$

$$b = 3Q$$

$$R = \frac{1}{4} b$$

$$b = 4R$$

$$S = \frac{1}{9} b$$

$$b = 9S$$

$$T = \frac{1}{6} c$$

$$c = 6T$$

$$V = \frac{1}{3} e$$

$$e = 3V$$

$$W = \frac{1}{5} d$$

$$d = 5W$$

To find one n -th fraction of a number or any other object this object has to be divided into n equal parts.

For example:

One of the ways to find one n -th fraction of a rectangle is to cut it into n equal strips.

$$1 : 2 =$$



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

$$1 : 3 =$$



$$\frac{1}{3} \times 3 =$$

$$1 : 5 =$$



$$\frac{1}{5} \times 5 =$$

$$1 : 7 =$$



$$\frac{1}{7} \times 7 =$$

26

Solving equations via replacement:

$$72 : (x - 2) = 9$$

$$\downarrow z = x - 2$$

$$72 : z = 9$$

$$z = 72 : 9$$

$$z = 8$$

$$\curvearrow z = x - 2$$

$$x - 2 = 8$$

$$x = 8 + 2$$

$$x = 10$$

$$72 : (10 - 2) =$$

$$= 72 : 8 = 9 \quad \checkmark$$

$$72 : (x - 2) = 9 \quad z = x - 2 \rightarrow \boxed{}$$

1. Simplify the original equation
2. Solve the simplified equation
3. Go back to the original unknown
4. Check your answer

$$72 - (8 : x) = 68$$

$$72 - (8 : x) = 68 \quad z = \rightarrow \boxed{}$$

27

The price of each bus connection is plotted on the map. Help Foxy tail to find the cheapest way to his friend.

