Lesson № 18

1 Write the equations needed to answer the questions below:

The sum of 6 and three times a number equals 33. Find the number.

_____

The difference between 55 and four times a number equals 15. Find the number.

_____

The sum of 3 and six times the number is equal to 39. Find the number.

_____

The sum of 5 and a number divided by 4 is 9. Find the number.

_____

The difference between 8 and a number is 2. Find the number.

_____

2 Two towns are 520 km away from each other. At noon a car starts moving from town *A* towards town *B*. At the same time a truck starts moving from town *B* to town *A*. The car moves 80 km/h; the truck moves at the speed of 60 km/h.
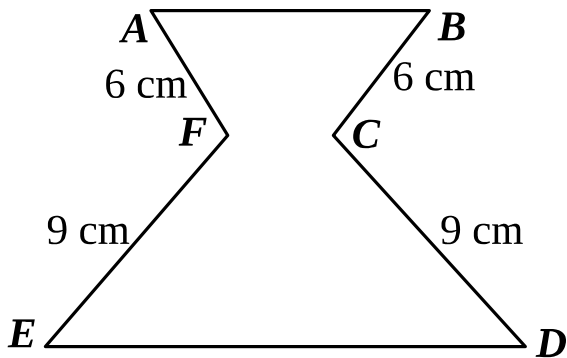

A

B

80 km/h

60 km/h
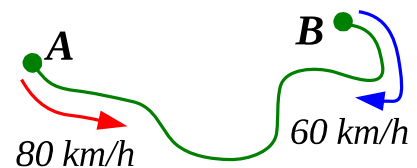
Explain the meanings of the following expressions:

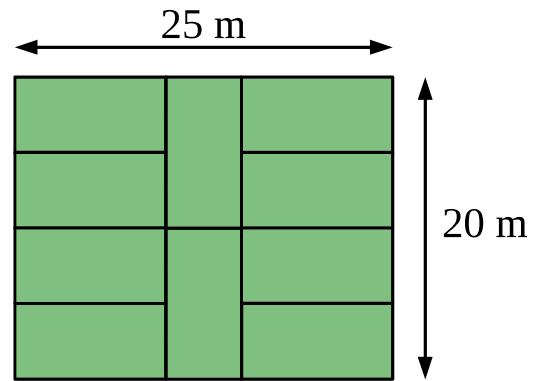| 520 : 80	…the time it takes the car to …
520 : 60	
80 + 60	
520 − (60 + 80)	
520 − 2 · (60 + 80)	
520 : (60 + 80)	

3 Solve the problems:

The figure **ABCDEF** has a perimeter of 52 cm. If **AB** is shorter than **ED** by 8 cm, what is the length of **AB**?

A play park consists of 10 "crazy rooms". Find the dimensions of each room.

4 Use distributive properties of multiplication and division to remove parentheses:

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

$$(a + b) : c = a : c + b : c$$

$2 \times (5 + 8) = 2 \times 5 +$ _____

$5 \times (7 + 9) =$ _____ $+$ _____

$(x + 4) \times 3 =$ _____

$5 \times (y + 2) =$ _____

$(3w + 1) \times 2 =$ _____

$5 \times (4q + 3) =$ _____

$(10x + 5) : 5 =$ _____

$(10x - 5) : 5 =$ _____

5 Solve equations:

$35 - x : 5 = 15$

$35 - 5x = 15$

One nth ($\frac{1}{n}$) of a number.
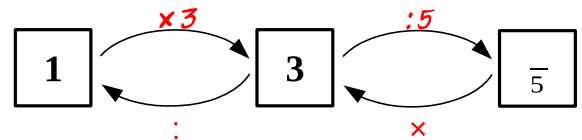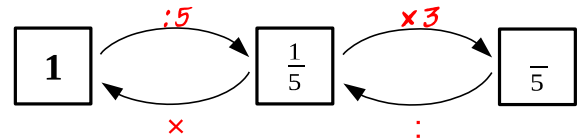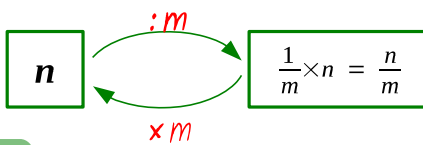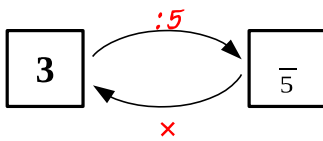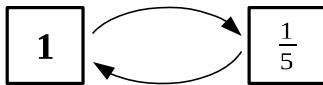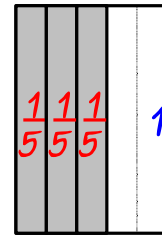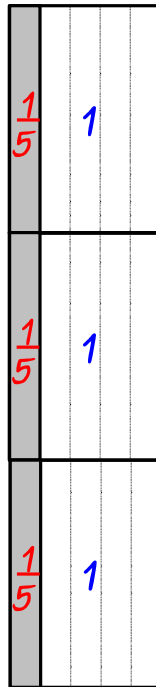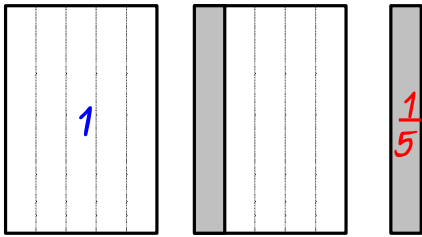
6 Calculate:

$1 \times 5 : 7 =$ $1 \times 3 : 11 =$ $1 \times 2 : 9 =$ $1 \times 4 : 13 =$

$1 \times 7 : 9 =$ $1 \times 11 : 7 =$ $1 \times 4 : 13 =$ $1 \times 13 : 4 =$

7 Calculate:

$1 : 9 \times 7 =$ $1 : 11 \times 4 =$ $1 : 7 \times 6 =$ $1 : 13 \times 4 =$

$1 : 11 \times 3 =$ $1 : 5 \times 2 =$ $1 : 12 \times 7 =$ $1 : 6 \times 7 =$

8 Fill in the blanks:

$1 : 9 \times 7 = 1 \times \square : \square =$ $1 : 11 \times 4 = 1 \times \square : \square =$ $1 : 7 \times 6 = 1 \times \square : \square =$

$1 : 13 \times 4 = 1 \times \square : \square =$ $1 : 5 \times 2 = 1 \times \square : \square =$ $1 : 12 \times 7 = 1 \times \square : \square =$

$1 \times 7 : 9 = 1 : \square \times \square =$ $1 \times 11 : 7 = 1 : \square \times \square =$ $1 \times 4 : 13 = 1 : \square \times \square =$

9 There is another small island near Cat Island. The cats living on the west of the island always tell the truth and the cats from the east always lie. Pop Eye visited the island one day and asked the first cat he met: "Are you from the east or west side of the island?" What do you think the answer was?

What if Pop Eye asked all cats on the beach the same question and all of them said that everybody else on the beach is from the east part of the island. How many cats from the west were on the beach?
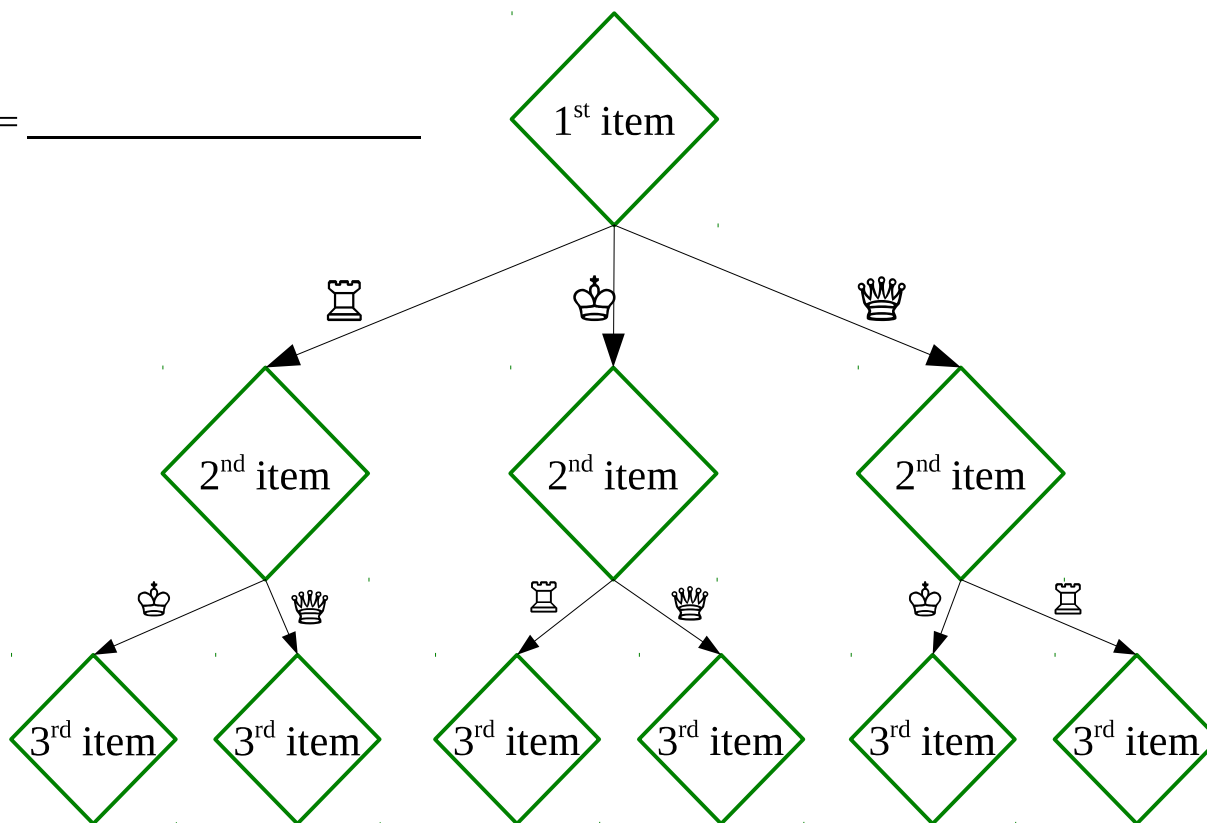
Tree of Options.

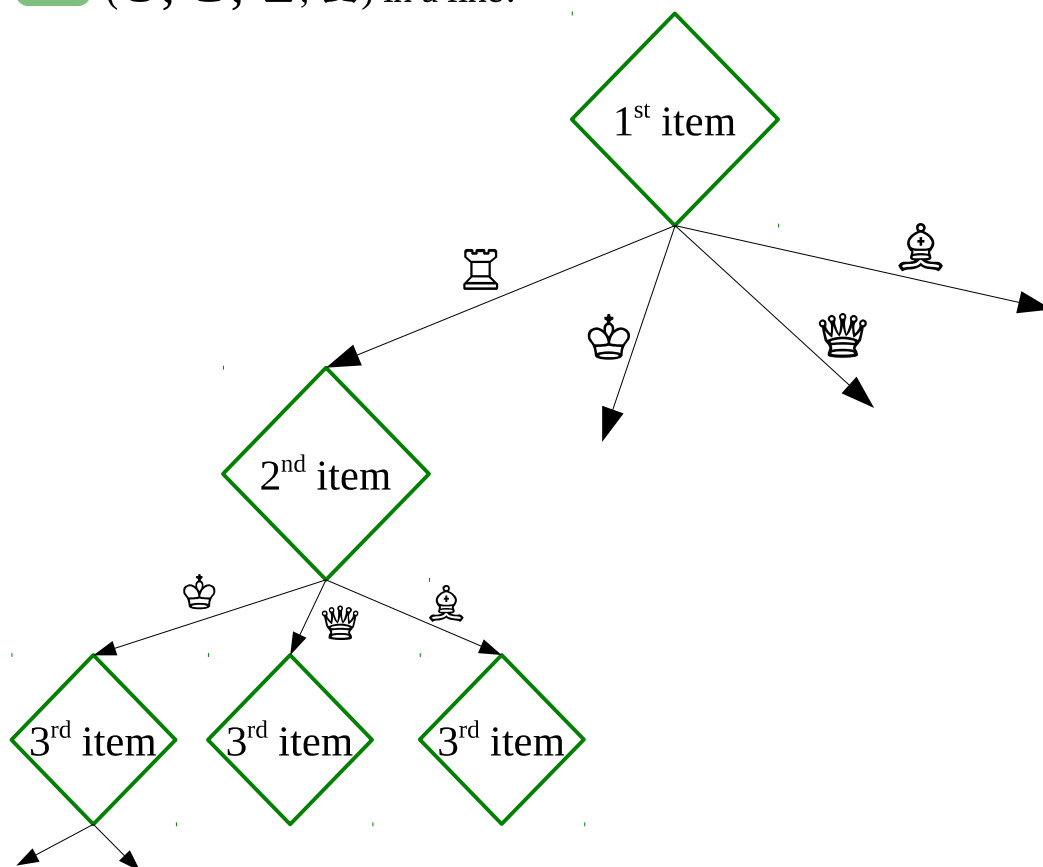**10** How many ways are there to arrange 3 objects (♔, ♕, ♖) in a line?

_____   _____   _____   _____

_____   _____   _____   _____

N = _____

11 Construct a tree of options to see how many ways are there to arrange 4 objects (♔, ♕, ♖, ♗) in a line?

1ˢᵗ item

2ⁿᵈ item

3ʳᵈ item   3ʳᵈ item   3ʳᵈ item

N = _____

12 Travel times required to drive between the towns depend not only on the distances between these towns, but also on the maximal allowed speeds. These times are marked on the graph. What is the least time required to drive from town *A* to town *F*?

B   15 min   *D*   40 min
15 min   5 min   15 min   10 min   5 min   *F*
A   *E*
20 min   *C*   30 min