# Math 4. Class Work 17

## Distance, speed, and time

Let's denote the rate (speed) of the car *v*, the time during which the car was moving *t*, and the distance it travelled, *S*.


$$S = v \cdot t = vt$$

If $v = 70\ km/h$ and $t = 3\ h$, then $S = 70\frac{km}{h} \cdot 3h = 70km$.

If we know two out of three parameters, we always can find the third one.

$$S = vt; \quad v = \frac{S}{t}; \quad t = \frac{S}{v};$$

## Relation between units

$$1\ kilometer\ (km) = 1000\ meters(m)$$
$$1\ meter = 100\ centimeters\ (cm)$$
$$1\ hour\ (h) = 60\ minutes(min)$$
$$1\ minute\ (min) = 60\ seconds(s)$$

## Geometry notations

k = Circ(M, r =4 cm) - a circle with a center at point M and a radius of 4 cm.

{P, Q, R} - a list of points , |AB| = 3 cm – the size of a segment $\overline{AB}$

∩ - intersection symbol, || - parallel lines, ∈ - belongs to, an element of a list or object

# Problems

1. Calculate

$\frac{2}{3} + \frac{1}{5} =$ $\quad \frac{3}{4} \times \left(-\frac{6}{27}\right) =$ $\quad \frac{5}{7}x \cdot \frac{21}{100} =$ $\quad 2x \cdot \frac{3}{4} =$

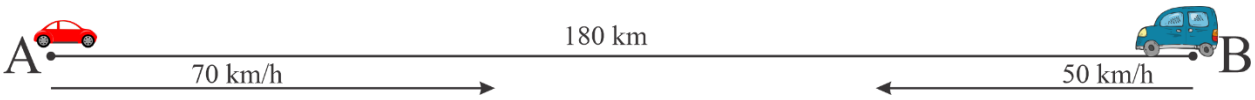
2. Indicate the order of operations and then open the parentheses

a) $(2\boldsymbol{x} + 2\boldsymbol{y} + 2\boldsymbol{y} + 3) : 4 - \frac{1}{2} \cdot (\boldsymbol{x} + 2\boldsymbol{y} - \frac{1}{2}) =$

b) $\frac{1}{5} \cdot (10\boldsymbol{w} - 15\boldsymbol{x}) - (18\boldsymbol{x} - 6\boldsymbol{w}) : 3 =$

c) $\left(\frac{1}{2}\boldsymbol{x} + 9\boldsymbol{w}\right) \cdot \frac{1}{3} - (2\boldsymbol{w} - \frac{5}{6}\boldsymbol{x}) =$

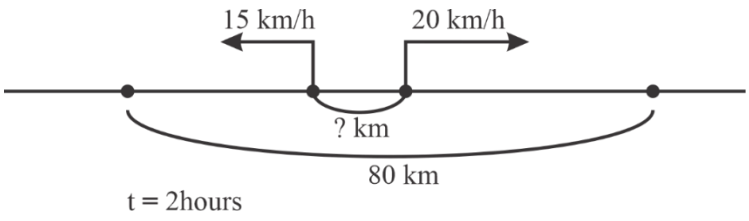
3. Two cars start moving towards each other at the same time from the two cities, A and B. The distance between the cities is 180 km. The speed of the car that departed from city A is 50 km/h, the speed of the car that left from city B is 70 km/h. In how many hours will they meet? How far from the city A they will meet?




4. Represent speed in new units:
   a) in *kilometers per hours* **Example:** $25\frac{m.}{min.} = 25 \cdot 60\frac{m}{h} = \frac{25 \cdot 60}{1000}\frac{km}{h} = 3.12\frac{km}{h}$
   b) in *in meters per minute:* $6\frac{\text{km}}{\text{h}}$
   c) in *meters per second*: $30\frac{m}{min}$

5. A moving walkway at an airport moves at a pace of 0.55 meters per second. If Peter stands on the walkway as it moves, how long will it take to transport him 200 meters? If he walks on this walkway at a speed of 4 km/h, how long will it take him to get to the end of the 200-meter-long walkway?

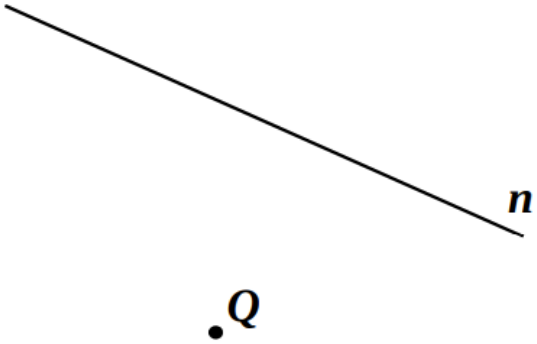
6. Using the drawing, suggest a word problem, then create and solve an equation for the unknown distance.




For example, two cyclists simultaneously started moving in the opposite directions.

7. (Homework review) Use a straight edge and a compass to plot straight line **QX || n**

Procedure:
1. Draw point Q and line n
2. _____
3. _____
4. _____



8. Plot a straight line ***KT*** ⊥ ***m***.

1. Plot point K and line m first

_____

_____

_____

_____

9. Translate points and shapes according to the instructions given by the arrows: