

Math 4a. Homework 23.



Problems marked with \* are more difficult.

1. \* A swimming pool can be filed by one pipe in 10 hours or by second pipe in 15 hours. For 2.5 hours the pool was being filed by the firs pipe, then the second pipe was open. In how many hours after the opening of the second pipe the swimming pool will be filed up? Will be filed up by  $\frac{3}{4}$ ?
2. 400 kg of grapes are needed to get 72 kg of raisins. How many kilograms of grapes are needed to get 180 kg of raisins?
3. Rewrite the following expressions without parenthesis (use the distributive properties):

Example:

$$-3(x - y) = (-3) \cdot x + (-3) \cdot (-y) = -3x + 3y$$

- a.  $-(a - b)$ ;
  - b.  $-3(c + d)$ ;
  - c.  $2(-x + y)$ ;
  - d.  $x(-x + 2y + 1)$ ;
  - e.  $-y(x - y + 3)$ ;
  - f.  $-2a(-a + b - 4)$
4. Using ruler draw a triangle, draw three altitudes in it (remember – altitude is a segment in a triangle, which passes from a vertex to of the opposite side or the continuation of the opposite side and perpendicular to it.) Did all three of your altitudes intersect in one point? (to draw a perpendicular use anything with the right angle).
  5. N is a set of natural numbers, Z is a set of integers, Q is a set of rational numbers.

Distribute the following numbers in the diagram:

$$-6; 2.5; 0; 4; \frac{1}{3}; -1\frac{2}{7}$$



6. Calculate (in this assignment comma is a decimal point).

1)  $1,8 \xrightarrow{\cdot 5} \bigcirc \xrightarrow{-3,6} \bigcirc \xrightarrow{: 0,9} \bigcirc \xrightarrow{\cdot 0,2} \bigcirc \xrightarrow{+0,05} \boxed{?}$

2)  $2 \xrightarrow{: 3} \bigcirc \xrightarrow{\cdot \frac{3}{4}} \bigcirc \xrightarrow{+0,5} \bigcirc \xrightarrow{-\frac{4}{9}} \bigcirc \xrightarrow{\cdot 4,5} \boxed{?}$

3)  $2,3 \xrightarrow{+1,7} \bigcirc \xrightarrow{: 5} \bigcirc \xrightarrow{\cdot 0,1} \bigcirc \xrightarrow{-0,03} \bigcirc \xrightarrow{: 0,01} \boxed{?}$

4)  $\frac{1}{3} \xrightarrow{+0,2} \bigcirc \xrightarrow{: \frac{2}{15}} \bigcirc \xrightarrow{\cdot \frac{3}{4}} \bigcirc \xrightarrow{-1\frac{1}{3}} \bigcirc \xrightarrow{\cdot 6} \boxed{?}$

7. Ratio of number of girls and number of boys is 2:3.

- How many girls and how many boys are there in the class, if there are 35 students altogether?
- How many boys are there if there are 8 girls in the class?
- How many girls are there if there are 15 boys in the class?