Algebra and Geometry 1. Homework 2.

1. Evaluate by the most convenient way:
   a. $(972 + 379) - 972$;
   b. $(382 + 417) - 416$;
   c. $851 - (831 + 7)$;
   d. $134 - 98 - 2$;
   e. $83 \cdot 9 - 73 \cdot 9$;
   f. $24 \cdot 96 - 24 \cdot 86$;
   g. $(538 + 245) - 245$;
   h. $(725 + 158) - 625$;
   i. $276 - (18 + 176)$;
   j. $580 - 79 - 21$;
   k. $7 \cdot 38 - 7 \cdot 28$;
   l. $716 \cdot 52 - 616 \cdot 52$;

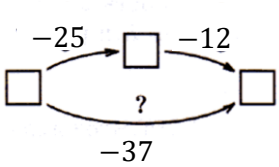
Example:

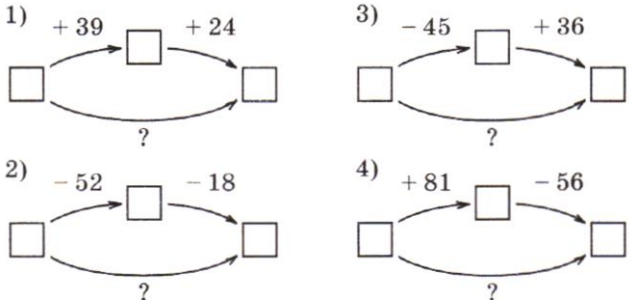
$\mathbf{(972 + 379) - 97 = 972 - 972 + 379 = 379}$;

$\mathbf{63 \cdot 7 - 7 \cdot 53 = 7 \cdot (63 - 53) = 7 \cdot 10 = 70}$

$\mathbf{179 - 92 - 8 = 179 - (92 + 8) - 179 - 100 = 79}$

2. Find the missing operation:
   Example:





3. Will the product of 2 consecutive natural numbers be divisible by 2? Why?

4. Will the product of 3 consecutive natural numbers be divisible by 3, by 6? Why?

5. If the number a is an even number, will the number $3a$ be even?

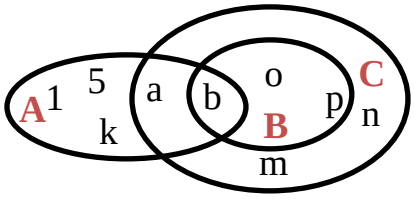
6. Number b is not divisible by 5. Will the number $3b$ be divisible by 5? Number 5b?

7. An apple worm was eating an apple. On the first day, it ate half of the apple, on the second day it ate half of the rest, and on the third day it ate half of the rest again. On the fourth day it ate all the leftovers. What part of the apple did it eat on the fourth day?

8. K is the set of students, who likes mathematics, E is the set students, who can run fast. What do the following expressions represent?

$$K \cap E \text{ and } K \cup E$$

9. With the curled brackets write of which elements consist the sets A, B, and C on the picture on the right.



10. On a segment [AB] points P and M are marked. Point M lies between A and P, point P is a center of the segment [BM]. Draw a picture, find the length of the segment [AM], if the length of [AP]=6cm, [BP]=5 cm.

11. Draw the line a and mark points A, B, C, D, K on the line a so that
    a. Point C belongs to the segment [AB] (C∈[AB])
    b. Point D belongs to the ray AB and doesn't belongs to the segment [AB] (D∈[AB), D∉[AB]);
    c. Point K belongs to the ray BA and doesn't belongs to the segment [AB] (K∈[BA), K∉[BA]);

12. Solve the problem (draw a picture, use ruler!):
    On a line three points are marked (point M, point N and point O) so that the length of a segment $|MN| = 5\ cm$, the length of a segment $|NO| = 3\ cm$. What is the length of a segment $[MO]$? (be careful, look for all possible solutions).

13. * Solve the problem (draw a picture, use ruler!):
    The length of a segment |AB| = 6 cm. Point C is marked on the segment [AB]. What is the distance between the middle of the segment [AC] and middle of the segment [CB]? Explain why.