Math 4a. Homework 22.

Problems marked with * are more difficult.

1. Solve the following equations:

a. $-4.3 - (1.8 - x) = 3$

c. $(c - 6) - (4.5 - c) = -1.5$

b. $\left(n + 1\frac{1}{2}\right) - 4\frac{2}{9} = -4\frac{8}{10}$

d. $1\frac{5}{6} - \left(k - \frac{7}{12}\right) + 2\frac{1}{12} = 0.$

2. Solve the following equations, mark the answers on a number line, find the coordinate of the midpoint of the segment.
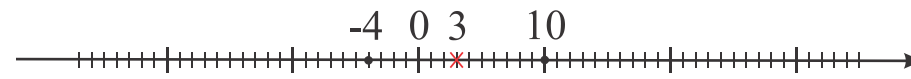
Example:

$|x - 3| = 7$

$x - 3 = 7$ $x - 3 = -7$

$x = 7 + 3 = 10$ $x = -7 + 3 = -4$

-4   0 3   10

Coordinate of midpoint is 3.

a. $|a - 4| = 1;$

c. $|c + 1| = 2;$

b. $|b - 2| = 3;$

d. $|d + 3| = 4;$

3. *There are 2 different kinds of tea in a tee store. One costs 5 dollars a pound and another is 8 dollars a pound. How the owner should mix these two kinds of teas, to get 10 pounds of tea which will cost 6 dollars a pound?

4. Among the following statements find the false ones. Prove it by providing examples.

All prime numbers are odd.

All odd numbers are prime numbers.

Any number multiple of 9 is multiple of 3.

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5. Compute in your head, just write the answer, try to do it as fast as possible:

a. $3.2 + 7.5;$

f. $12.5 - 0.05;$

k. $3.2 : 0.01;$

b. $9.2 - 2;$

g. $2.78 - 1.28;$

l. $2.4 \cdot 10;$

c. $8 - 1.7;$

h. $5.6 + 3.4;$

m. $5.8 \cdot 0.1;$

d. $2.8 + 0.7;$

i. $3.14 - 1.9;$

n. $9.2 : 100;$

e. $0.06 + 2.9;$

j. $4.5 + 0.63;$

o. $0.7 \cdot 0.4;$

6. Using ruler draw a triangle, draw three medinas in it (remember – median is a segment in a triangle, which passes from a vertex to the midpoint of the opposite side.) Did all three of your medians intersect in one point? Cut your triangle, try to balance it on a sharpened pencil at the point of intersection of the medians. It should balance!

7. Write the following series of arithmetic operation as a single number expression and evaluate it.
   1) Rise $1\frac{1}{2}$ to the power 3.
   2) From the result of step 1 subtract $1\frac{3}{4}$.
   3) The resulting difference divide by $4\frac{7}{8}$.
   4) $2\frac{2}{3}$ divide by $10\frac{1}{2}$.
   5) Result of step 4 multiply by $1\frac{5}{16}$.
   6) From the result of step 3 subtract the result of step 5.

8. In the first box there are twice as many pencils as in the second. Mary took 5 pencils from the first box and put 3 pencils in the second. After that, the number of pencils in both boxes became equal. How many pencils was in each box at the beginning?

9. On a grid (graph) paper draw the coordinate system. Mark the points A(0;2), B(2;6), C(8;8), D(6,4). Draw the quadrilateral. Find the coordinate of the intersection of the diagonals. Use ruler! Try to be accurate!

10. Evaluate the following expressions:

   a. Using fractions:
      a) $\frac{2}{3} + 0.6$;
      b) $1\frac{1}{6} - 0.5$;
      c) $0.3 \cdot \frac{5}{9}$;
      d) $\frac{8}{11} : 0.4$;

   b. Using decimals:

      a) $0.36 + \frac{1}{2}$;
      b) $5.8 - \frac{3}{4}$;
      c) $\frac{2}{5} : 0.001$;
      d) $7.2 \cdot \frac{1}{100}$;