Accelerated math. 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:
$|x-3|=7$
$x-3=7$
$x-3=-7$
$x=7+3=10$
$x=-7+3=-4$
$\begin{array}{llll}-4 & 0 & 3 & 10\end{array}$
Coordinate of midpoint is 3 .
a. $|a-4|=1$;
b. $|b-2|=3$;
c. $|c+1|=2$;
d. $|d+3|=4$;

What do you notice?
3. *There are 2 different kinds of tea in a tea 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. 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!
5. 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.
6. On a grid (graph) paper draw a 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!
7. 140 g . of salt were dissolved in 5.6 I ( 1 liter of water weights 1000 g .). What is the concentration of the salt (amount of salt in 1 I of water or \% of the mass of salt in the solution).
8. *Equal amount of 3 solutions of salt were mixed together. The concentration of the first solution is $18 \%$ of salt, concentration of the second solution is $7 \%$. What is the concentration of the third solution, if the concentration of the resulting mixture is $10 \%$. (Which means that in 1000 g . of the solution there is 100 g . (10\%) of salt).
9. Compute (answer is 56), show your solution:

$$
\frac{\left(1.75 \cdot 3 \frac{2}{3}+\frac{1}{3} \cdot 1.75\right): 0.1 \cdot \frac{4}{7}-21 \frac{1}{3}}{0.4 \cdot 4 \frac{5}{6} \cdot 2.5-9:\left(5 \frac{4}{5} \cdot 0.1+1.42\right)}
$$

10. Prove that if numbers $a$ and $b$ are both divisible by $c$, than their sum is also divisible by $c$.
11. Simplify the expressions:
a. $7 x-\left(8+4 x-3 x^{2}\right)+\left(5-3 x^{2}\right)$
b. $6+\left(2 x^{2}-5 x\right)-\left(4 x^{2}+6\right)+5$
c. $5 a\left(2 a^{2}+4 a-3\right)$
d. $0.8\left(7-8 x+9 x^{2}\right)$
