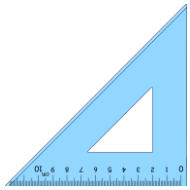
Accelerated math. Homework 8

Problems marked with * are more difficult.

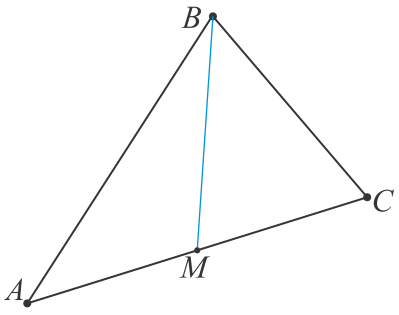
1. Compute (you don't need to write the answer, just do it:

$6-8$	$-6+8$	$-8+(-6)$	$-24-7$	$-38+19$
$-12+4$	$-4-2$	$21-28$	$16-(-6)$	$47-54$
$-3-6$	$9+(-8)$	$-5-(-7)$	$-37+18$	$-17-17$
$-7+10$	$4-7$	$-37+21$	$-9+(-8)$	$0-38$
$10+(-6)$	$-8+2$	$16-9$	$34-35$	$-18+36$

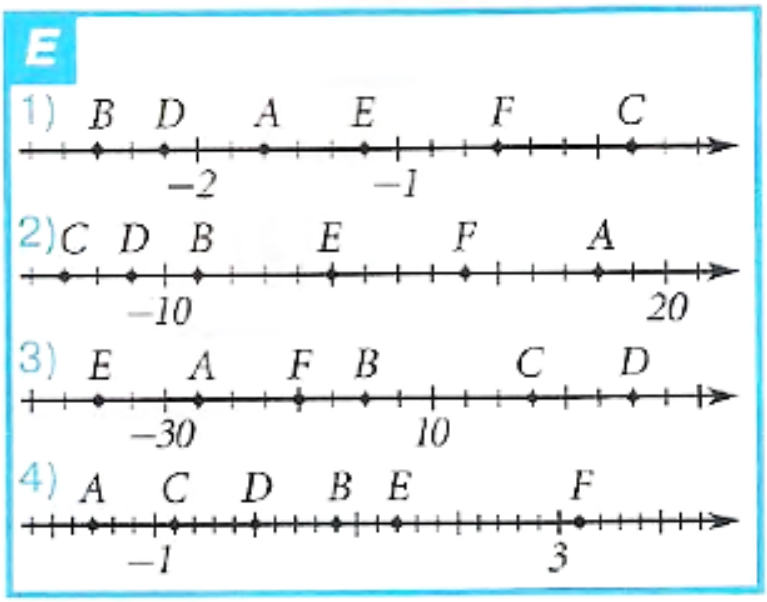
2. Draw triangle ABC with side $|AB| = 4\ cm$, side $|BC| = 6\ cm$, and side $|CA| = 7\ cm$. On the side BC mark a midpoint M (use the marks on a ruler to measure the side BC, as well as to open the compass to the right angle). Draw a segment AM. AM is a median. Draw 2 other medians of the triangle ABC.
3. Draw triangle KLM with sides |KL|=5 cm, |LM|=8 cm, and |MK|=10 cm. Using ruler triangle similar to the triangle on the picture or just two rulers draw all 3 altitudes in this triangle (remember, altitude – is a segment drawn from the vertex of the triangle to the opposite side on the right angle).



4. *Segment BM in the triangle ABC on the picture below, is a median. Prove, that the area of the triangle AMB is equal to the area of the triangle MBC. (Area of a triangle is equal to the half of the product of the altitude and the base to which this altitude is drawn, $S_{\Delta} = \frac{1}{2} h \cdot a$, where a is the base and h is altitude)



5. Find coordinates of the points on each number line below.



6. Evaluate the following expressions in 2 ways: by first performing the operation in the parenthesis, and by first opening the parenthesis (follow the *example*:

   $34 - (3 - 4) = 34 - (-1) = 24 + 1 = 35$

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   $26 - \big(18 + (-7)\big)$, $(3 - 23) - (4 - 10)$,

   $-84 - (-18 - 6)$, $(-8 + 15) - (-6 - 20)$

7. Solve the following equations:

   $(x - 12) \cdot 8 = 56;$
   $24 \cdot (z + 9) = 288;$
   $(y + 25) : 8 = 16;$