Math 4a. Classwork 21.

Algebra.

1. Rewrite the following expressions without parenthesis:

$-3.64 - (12.45 - 3.64) =$

$1\frac{3}{8} + \left(-2\frac{7}{9} + \frac{5}{8}\right) =$

$(5.6 - 7.2) - (-7.2 + 3.4) =$

$\left(2.4 - \frac{2}{3}\right) + 2.4 - \left(1.8 + 1\frac{5}{6}\right) =$

$45 - (-7 + 18) - (34 - 18 + 26) =$

$-9.7 + (-3.8 + 5.2) - (2.9 - 5.2 - 9.7) + 3.8$

$-(a - b)$

$-(c + d)$

$-(-x + y)$

$d - (-k + t)$

$-m + (a - c)$

$p - (-n + r - s)$

$c - (b + c - a) + (-a + b)$

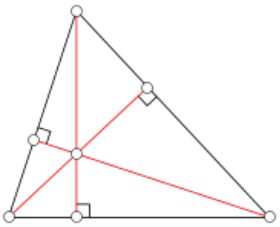
$(d - m) - b - (-m + x + d) + x$

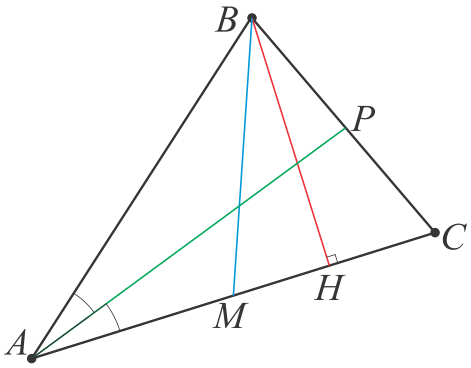
$k - (y - c) + (d - c - y) + (-k + d)$

Geometry.

Special segments of a triangle.

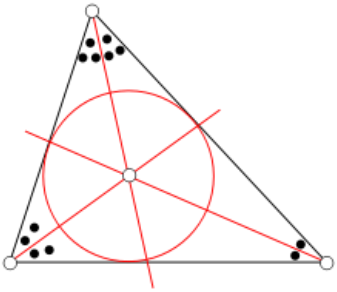
From each vertices of a tringle to the opposite side 3 special segment can be constructed.

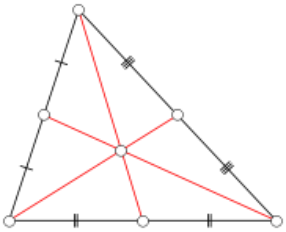




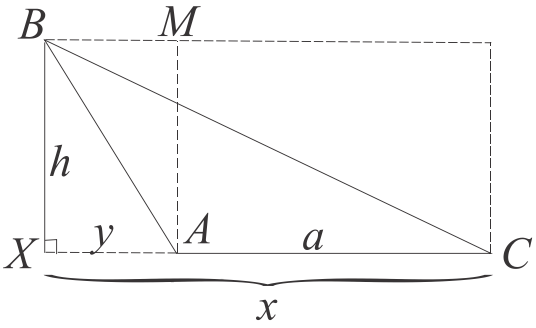
An **altitude** of a triangle is a straight line through a vertex and perpendicular to (i.e. forming a right angle with) the opposite side. This opposite side is called the *base* of the altitude, and the point where the altitude intersects the base (or its extension) is called the *foot* of the altitude.

An **angle bisector** of a triangle is a straight line through a vertex which cuts the corresponding angle in half.





A **median** of a triangle is a straight line through a vertex and the midpoint of the opposite side, and divides the triangle into two equal areas.



For an obtuse triangle, for one out of the three heights, it is not so obvious.

$$S_{\Delta XBC} = \frac{1}{2}h \times x, \qquad S_{\Delta XBA} = \frac{1}{2}h \times y$$

$$S_{\Delta ABC} = S_{\Delta XBC} - S_{\Delta XBA} = \frac{1}{2}h \times x - \frac{1}{2}h \times y$$
$$= \frac{1}{2}h \times (x - y) = \frac{1}{2}h \times a$$