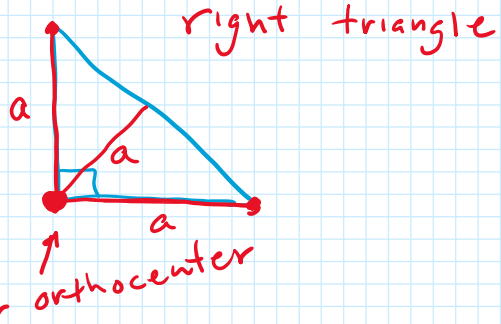
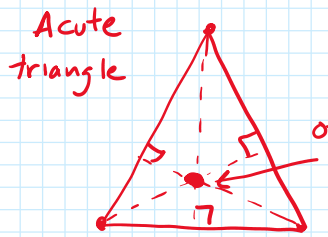
7-5 Medians and Altitudes (Master)

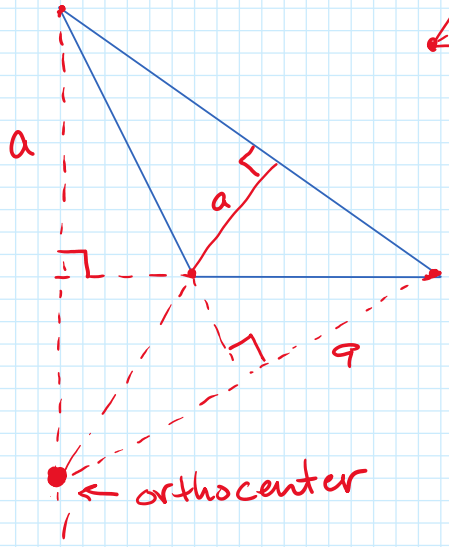
Wednesday, December 9, 2020 12:20 PM

Altitude: A perpendicular segment from a vertex to the opposite side





Obtuse Triangle



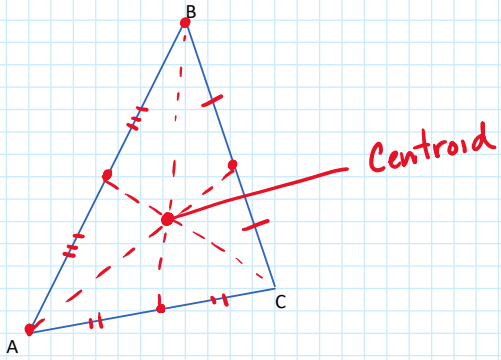
a = altitude

Orthocenter- is the intersection of the three altitudes

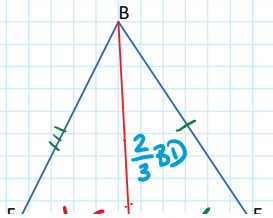
- Obtuse- the orthocenter will be on the exterior of the triangle
- Acute- the orthocenter will be in the interior of the triangle
- Right- the orthocenter will be on the triangle

Median: a segment that has endpoints at a vertex and the midpoint of the opposite side

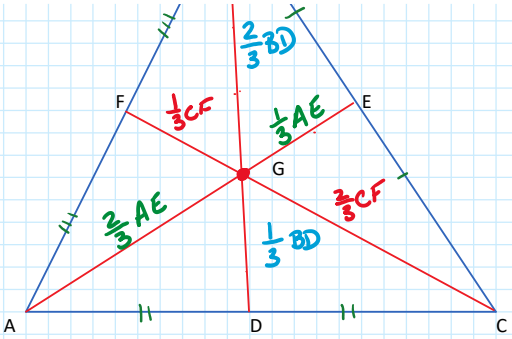
Midpoint = $(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$



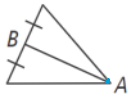
Centroid: the point of intersection of the three medians



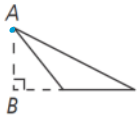
$2\left(\frac{1}{3}\right) = \frac{2}{3}$



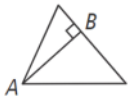
Ex 1 For each triangle, identify whether $\overline{AB}$ is an altitude, a median, or neither.

1. 

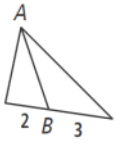
median

2. 

Altitude

3. 

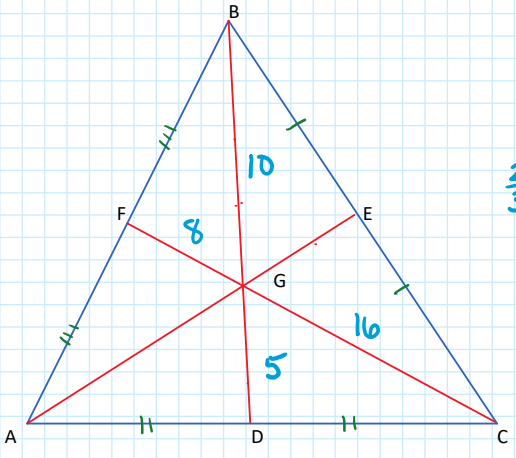
altitude

4. 

Neither

Ex 2 In ΔABC, G is the centroid. BD = 15 and GF = 8.

$\frac{2}{3} = 2\left(\frac{1}{3}\right)$



$\frac{2}{3}BD$

BD = 15

BG = $\frac{2}{3}(15) = 10$

GD = $\frac{1}{3}(BD) = 5$

$\frac{1}{2}(BG) = 5$

CF = 24

CG = 16

GF = 8