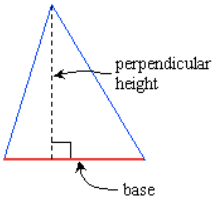
Monday, March 9, 2020

2.6 Exploring Properties of Geometric Figures

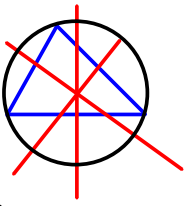
2.7 Using Coordinates to Solve Problems



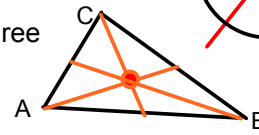
Vocabulary

altitude of a triangle - (height) the perpendicular distance from a vertex to the opposite side.

circumcenter - the point of intersection of the three perpendicular bisectors of the sides of a triangle



centroid - the point of intersection of the three medians of a triangle



Additional Properties of Triangle Centers (What are they used for??)

- the centroid is the center of mass, or the balance point, of a triangular object
- the three vertices of a triangle are all the same distance from the circumcenter

Finding Triangle Centers

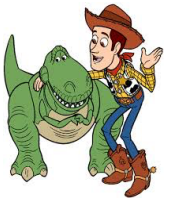
Example1: A thin triangular computer component shows the coordinates of the vertices at (8, 12), (12, 4), and (2, 8). Find the coordinates of the center of mass.

Shortcut to Find the Centroid!

Because the centroid is the balance point of the shape, you can find it's coordinates by finding the average value of the x - coordinates of the vertices and the y - coordinates of the vertices.

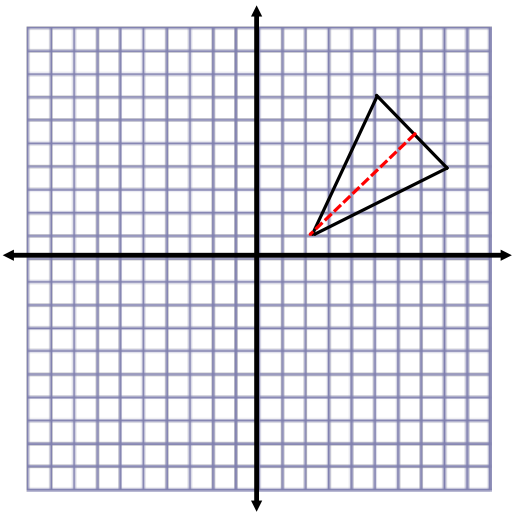
$$\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3}\right)$$

What would you do if you had to find the coordinates of a circumcenter?



Finding the Equation of an Altitude of a Triangle

Triangle ABC has vertices A(2, 1), B(5, 7), and C(8, 4). Determine the equation of the altitude from A.



Application Alert!! Find the area of triangle ABC.