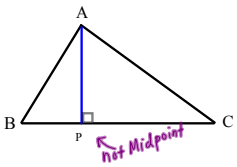
Properties of Triangles

Altitude:

a perpendicular line drawn from a vertex to the opposite side in a triangle.



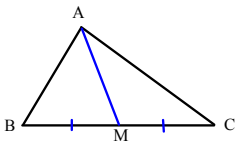
To get equation, find...

- m_{BC}
- $m_{\perp}$ ⟵ **slope**
- **point A** ⟵ **point**

USE: $y - y_1 = m(x - x_1)$

Median

a line drawn from a vertex to the midpoint of the opposite side in a triangle.



To get equation, find...

- **midpoint of BC**
- m_{AM} ⟵ **slope**
- **point A or M** ⟵ **point**

USE: $y - y_1 = m(x - x_1)$

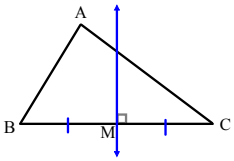
To get length, find...

- **midpoint of BC**
- D_{AM} ⟵ **2 points**

$D_{AM} = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

Right Bisector

a perpendicular line drawn through the midpoint of a line segment.



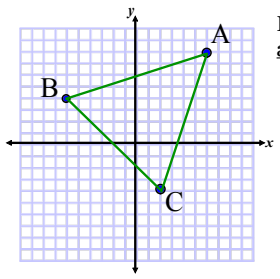
To get equation, find...

- m_{BC}
- $m_{\perp BC}$ ⟵ **slope**
- **midpoint of BC** ⟵ **point**

USE: $y - y_1 = m(x - x_1)$

Example:

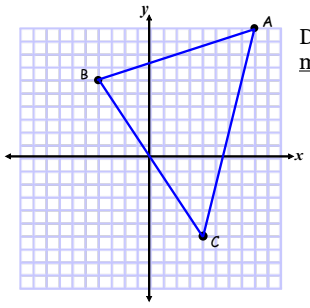
Δ ABC has vertices A (6, 8); B(-6, 4) & C(2, -4).



Determine the equation of the altitude from B to AC.

Example:

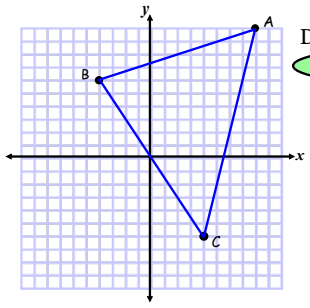
Δ ABC has vertices A (8, 10); B(-4, 6) & C(4, -6).



Determine the equation of the median from C to AB.

Example:

Δ ABC has vertices A (8, 10); B(-4, 6) & C(4, -6).



Determine the equation of the right bisector through AB