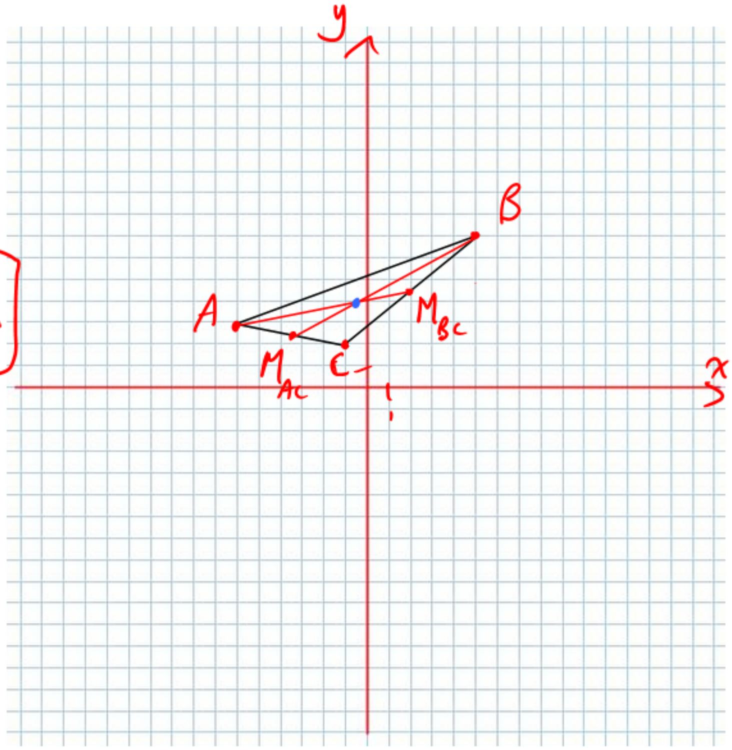
A triangle has vertices A(-6, 3), B (5, 7) and C (-1, 2).
a) find equation of the median from vertex A
b) find equation of the median from vertex B
c) find the intersection point of medians from vertex A and vertex B (Note: this point is called the Centroid)



a) $M_{BC} = \left(\frac{5+-1}{2}, \frac{7+2}{2}\right) = (2, 4.5)$

Slope: $AM_{BC} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4.5-3}{2-(-6)} = \frac{1.5}{8} = \boxed{\frac{3}{16} = m}$

$(-6, 3)\ (2, 4.5)$
$x_1\ y_1\ \ x_2\ y_2$

$y = mx + b \qquad (-6, 3) \quad m = \frac{3}{1}$

$3 = \frac{3}{16}(-6) + b$

$3 = \frac{-18}{16} + b$

$3 = -\frac{9}{8} + b$

$3 + \frac{9}{8} = b$

$\frac{33}{8} = b$

$y = \frac{3}{16}x + \frac{33}{8}$

b) $M_{AC} = \left(\frac{-6+-1}{2}, \frac{3+2}{2}\right) = (-3.5, 2.5)$

$(-3.5, 2.5)\ (5, 7)$

Slope BM_{AC}: $m = \frac{7-2.5}{5-(-3.5)} = \frac{4.5}{8.5} = \frac{9}{17}$

Eqn: $(5, 7) \quad m = \frac{9}{17}$

$7 = \frac{9}{17}(5) + b$

$7 = \frac{45}{17} + b$

$7 - \frac{45}{17} = b$

$\frac{119}{17} - \frac{45}{17} = b$

$\frac{74}{17} = b$

$y = \frac{9}{17}x + \frac{74}{17}$

c) Solve (PoI) of

$y = \frac{3}{16}x + \frac{33}{8}$

$y = \frac{9}{17}x + \frac{74}{17}$

$\frac{272}{1} \times \left(\frac{3}{16}x + \frac{33}{8}\right) = \left(\frac{9}{17}x + \frac{74}{17}\right) \times \frac{272}{1}$

$51x + 1122 = 144x + 1184$

$\frac{-62}{93} = \frac{93x}{93}$

$-\frac{2}{3} = x$

$y = \frac{\cancel{3}}{16}\left(-\frac{2}{\cancel{3}}\right) + \frac{33}{8}$

$y = -\frac{1}{8} + \frac{33}{8}$

$y = +\frac{32}{8}$

$y = +4$

$\therefore$ The PoI is $\left(-\frac{2}{3}, +4\right)$