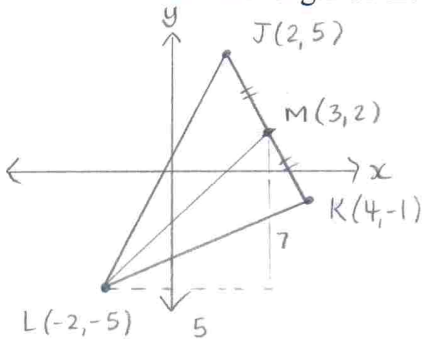


Quiz #7 - Analytic Geometry

1. Determine the length of the median from L for the triangle J(2, 5), K(4, -1), L(-2, -5).



① find midpoint M

$$M\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$= M\left(\frac{2+4}{2}, \frac{5+(-1)}{2}\right)$$

$$= M\left(\frac{6}{2}, \frac{4}{2}\right)$$

$$= M(3, 2)$$

② find distance LM

$$d^2 = 5^2 + 7^2$$

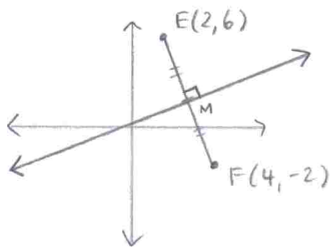
$$d^2 = 25 + 49$$

$$d^2 = 74$$

$$d = \sqrt{74}$$

∴ The length of the median from L is  $\sqrt{74}$

2. Determine the equation of the right bisector of the line segment joining E(2, 6) and F(4, -2).



① find slope of EF

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-2 - 6}{4 - 2}$$

$$= \frac{-8}{2}$$

$$= -4$$

∴  $\perp$  slope is  $\frac{1}{4}$

③ write equation of a line with slope  $\frac{1}{4}$ , passing through (3, 2)

$$y = mx + b$$

$$2 = \frac{1}{4}(3) + b$$

$$2 = \frac{3}{4} + b$$

$$\frac{8}{4} - \frac{3}{4} = b$$

$$\frac{5}{4} = b$$

② midpoint of EF

$$M\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$= M\left(\frac{2+4}{2}, \frac{6+(-2)}{2}\right)$$

$$= M\left(\frac{6}{2}, \frac{4}{2}\right)$$

$$= M(3, 2)$$

$$\therefore y = \frac{1}{4}x + \frac{5}{4}$$