MPM2D – More Exam Review
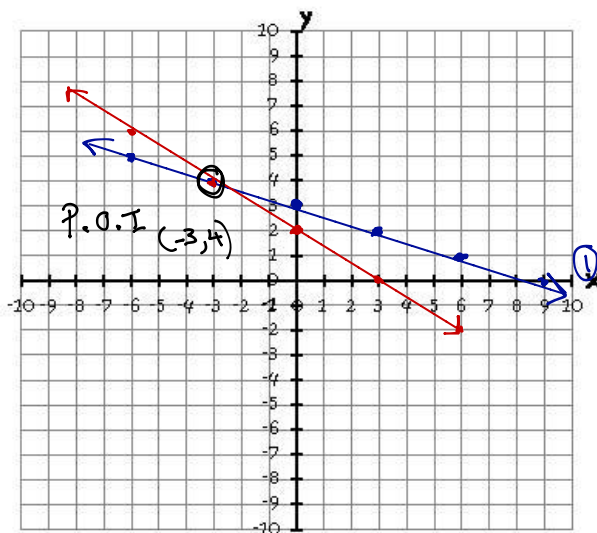
1. Solve the following linear system by graphing.

① $y = \dfrac{-1}{3}x + 3$ P.O.I $(-3,4)$

② $y = \dfrac{-2}{3}x + 2$

①

LS	RS
y	$-\frac{1}{3}x + 3$
4 ✓	$-\frac{1}{3}(-3) + 3$
	$\frac{3}{3} + 3$
	$\frac{1}{4} + 3$

②

LS	RS
y	$-\frac{2}{3}x + 2$
4	$-\frac{2}{3}(-3) + 2$
	$\frac{6}{3} + 2$
	$2 + 2$
	4

P.O.I $(-3,4)$

2. EDHS is holding a homecoming dinner and dance. The cost of the tickets to attend the dinner and dance afterwards is $40 per person. The cost of the tickets to attend the dance only is $25 per person. If a total of 350 tickets have been sold and $11 750 has been collected, determine how many people are attending the dinner and dance and how many will be attending the dance only.

Let d the # of people attending dinner and dance

Let j represent # of people attending dance only

① $d + j = 350$

② $40d + 25j = 11750$

In ① $\boxed{d = 350 - j}$ Subst. in ②

$$40(350-j) + 25j = 11750$$

$$14000 - 40j + 25j = 11750$$

$$14000 - 15j = 11750$$
$$\searrow 14000$$

$$-15j = 11750 - 14000$$

$$-15j = -2250$$

$$j = \frac{-2250}{-15}$$

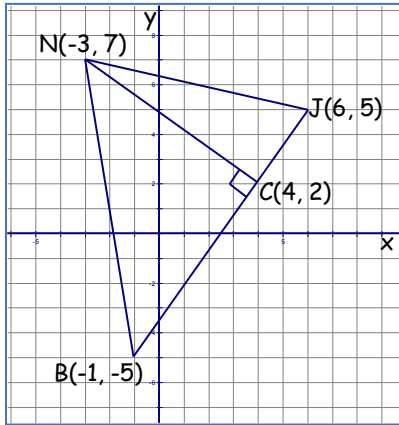$$j = 150$$

150 people went to the dance only

$$350 - 150 = 200$$

200 people went to the diner & dance.

3.   Determine the area of ΔNJB (to the nearest hundredth). Show your work

$A = \dfrac{bh}{2}$

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

$= \sqrt{(6-(-1))^2 + (5-(-5))^2}$

$= \sqrt{7^2 + 10^2}$

$= \sqrt{49 + 100}$

$= \sqrt{149}$

$JB = 12.21$

$NC = \sqrt{7^2 + (-5)^2}$

$= \sqrt{49 + 25}$

$= \sqrt{74}$

$NC = 8.6$
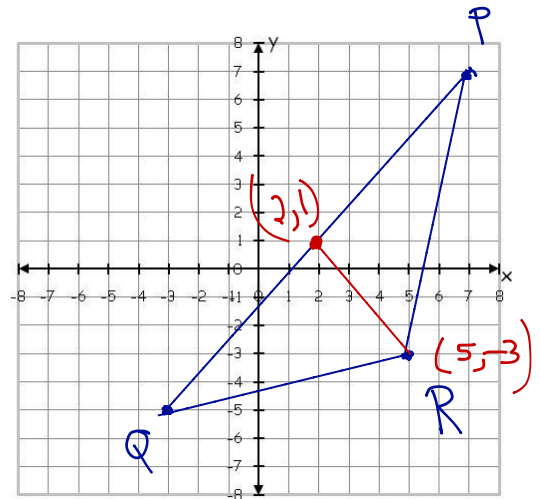
$A = \dfrac{(8.6)(12.21)}{2}$

$A = \dfrac{105 \text{ units}^2}{2}$

$A = 52.50 \text{ units}^2$

4.   ΔPQR with vertices P(7, 7), Q(-3, -5), and R(5, -3). Determine the equation of the
median from R. Include a sketch with your solution.

midpoint to a Vertex

$M_{PQ} = \left(\dfrac{x_1+x_2}{2} , \dfrac{y_1+y_2}{2} \right)$

$= \dfrac{7+(-3)}{2} , \dfrac{7+(-5)}{2}$

$= \dfrac{4}{2} , \dfrac{2}{2}$

$M_{PQ} = 2, 1$

<u>Eqn of Median</u> $y = mx + b$

① Det. slope $m = \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{-3-1}{5-2}$

                              $m = -4/3$

② Det. b   use 2,1

$b = -3/3 + 8/3$

$b = 11/3$

$b = 1 + 8/3$

$y = mx + b$

$1 = -4/3(2) + b$

$1 = -8/3 + b$

Eqn $y = -4/3x + 11/3$