

Ch. 13 Review Stations

1) $(-3, 7)$ $(5, -2)$

$$d = \sqrt{(-3-5)^2 + (7+2)^2} \quad M = \left(\frac{-3+5}{2}, \frac{7-2}{2} \right)$$

$$= \sqrt{(-8)^2 + (9)^2}$$

$$= \sqrt{64 + 81}$$

$$= \sqrt{145}$$

$$M = \frac{-2-7}{5+3}$$

$$5+3 = 8$$

$$= -\frac{9}{8}$$

2) vert: $x = -2.3$ hor: $y = 4.7$

3) $\begin{cases} 3x - 4y = 10 \\ 5x + 7y = 3 \end{cases} \quad \begin{aligned} -15x + 20y &= -50 \\ +15x + 21y &= 9 \end{aligned}$

$$41y = -41$$

$$y = -1$$

$$3x - 4(-1) = 10$$

$$3x + 4 = 10$$

$$3x = 6$$

$$x = 2$$

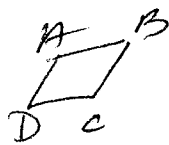
$$(2, -1)$$

4) $(x+4)^2 + (y-13)^2 = 45$

Center: $(-4, 13)$

radius = $\sqrt{45}$

$$= 3\sqrt{5}$$



5) $A(-5, 0)$ $B(3, 2)$ $C(5, 6)$ $D(-3, 4)$

1.) $AB: d = \sqrt{(-5-3)^2 + (0-2)^2}$ $DC: d = \sqrt{(5+3)^2 + (6-4)^2}$
 $= \sqrt{64 + 4}$ $= \sqrt{64 + 4}$
 $= \sqrt{68}$ $= \sqrt{68}$
 $= 2\sqrt{17}$ $= 2\sqrt{17}$

$\overline{AB} \cong \overline{DC}$

$m \overline{AB} = \frac{2-0}{3+5}$

$m \overline{DC} = \frac{4-6}{-3-5}$

$= \frac{2}{8}$
 $= \frac{1}{4}$

$= \frac{-2}{-8} = \frac{1}{4}$

Same slope, $\therefore \overline{AB} \parallel \overline{DC}$

2) $M \text{ of } \overline{AC} = \left(\frac{-5+5}{2}, \frac{0+6}{2} \right)$
 $= (0, 3)$

$M \text{ of } \overline{BD} = \left(\frac{3-3}{2}, \frac{2+4}{2} \right)$
 $= (0, 3)$

Diagonals have same midpoints, $\therefore$
 diag. bisect each other

6) $A(-4, 5)$ $B(2, 3) \rightarrow m = \frac{-2}{6} = -\frac{1}{3}$

1) $\overrightarrow{AB} = (6, -2)$

3) Any scalar multiple of $(6, -2)$

2) $|\overrightarrow{AB}| = \sqrt{6^2 + (-2)^2}$
 $= \sqrt{36 + 4} = 2\sqrt{10}$

4) $(1, -\frac{1}{3})$ or any scalar multiple