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Unit J Exam Review

1. A line contains points (-3, 3) and (1, 2). What is the slope of this line?

$x_1\ y_1 \quad x_2\ y_2$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{2-3}{1+3} = \frac{-1}{4}$$

1. $-1/4$

2. If a line has slope 2, each line perpendicular (opp./rec.) to it has slope $-1/2$ and each line parallel (same) to it has slope 2.

3. Line j has equation $-6x + 7y = 13$. If line k is perpendicular (opp./rec.) to j, what is the slope of k?

$y = mx + b$ (m = slope)

$-6x + 7y = 13$

$+6x \quad +6x$

$\frac{7y}{7} = \frac{6x}{7} + \frac{13}{7}$

$y = (6/7)x + 13/7$

3. $-7/6$

4. Give the coordinates of the midpoint of the segment joining (2, 3) and (4, -2).

$x_1\ y_1 \quad x_2\ y_2$

$\frac{2+4}{2}, \frac{3+-2}{2} \rightarrow 3, \frac{1}{2}$

4. $(3, 1/2)$

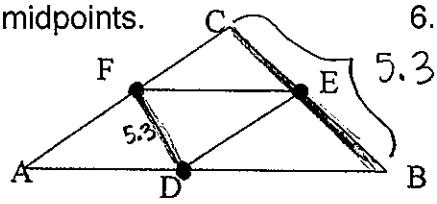
5. Give the coordinates of the midpoint of the segment joining (-6, -4) and (3, 5).

$x_1\ y_1 \quad x_2\ y_2$

$\frac{-6+3}{2} = \frac{-3}{2} = -1.5$ $\qquad \frac{-4+5}{2} = \frac{1}{2} = 0.5$

5. $(-1.5, 0.5)$

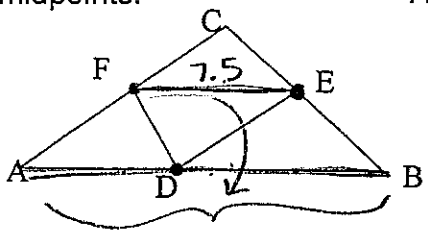
6. In ΔABC below, D, E, and F are midpoints. If $FD = 5.3$ inches, find CB.



$5.3 \times 2 = 10.6$

6. 10.6 in

7. In ΔABC below, D, E, and F are midpoints. If $FE = 7.5$ cm, find BA.



$7.5 \times 2 = 15$

7. 15 cm

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8. Find the distance between $X = (8, 4)$ and $Y = (12, -3)$. x_1, y_1 x_2, y_2 8. 8.06

$d = \sqrt{(12-8)^2 + (-3-4)^2}$

9. Find the distance between $A = (3, -1)$ and $B = (-2, -3)$. x_1, y_1 x_2, y_2 9. 5.39

$d = \sqrt{(-2-3)^2 + (-3--1)^2}$

10. Consider the circle with equation $(x+3)^2 + (y-4)^2 = 16$. $(x-h)^2 + (y-k)^2 = r^2$ center (h, k) $\sqrt{r^2} = \sqrt{16}$ $r = 4$

a. Find the center. 10a. $(-3, 4)$

b. Find the radius. b. 4

11. Write an equation to the circle with center $(2, -4)$ and radius 6. h k r

$(x-2)^2 + (y--4)^2 = 6^2$

$\boxed{(x-2)^2 + (y+4)^2 = 36}$

12. Write an equation to the circle with center $(0, 0)$ and radius 11. h k r

$(x-0)^2 + (y-0)^2 = 11^2$

$\boxed{x^2 + y^2 = 121}$