

## Sec 13.2

pgs. 616 – 617

#9 - 19, 23,

26, 27

#9 The line that represents the equation  $y = 8x - 1$  contains the point  $(k, 5)$ . Find  $k$ .

$$5 = 8k - 1$$

$$6 = 8k$$

$$k = \frac{3}{4}$$

#10 Line CD is perpendicular to the graph of  $2x + 3y = 8$ . If  $C = (1, 4)$ , find the equation of CD

$$y - 4 = \frac{3}{2}(x - 1)$$

or

$$y = \frac{3}{2}x + \frac{5}{2}$$

$$3y = -2x + 8$$

$$y = -\frac{2}{3}x + \frac{8}{3}$$

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

$$\perp m = \frac{3}{2}$$

#11 Show that  $-\frac{a}{b}$  is the slope of graph  $ax + by + c = 0$

$$by = -ax - c$$

$$y = -\frac{ax}{b} - \frac{c}{b}$$

$$y = mx + b$$

$$m = -a/b$$

$$y \text{ int} = -c/b$$

#12 Show that  $-\frac{c}{b}$  is the y intercept of the graph  $ax + by + c = 0$

see above

#13 Write in Point-slope form, and equation of a line through C, parallel to AB

$$m = \frac{3-1}{16-2} = \frac{2}{14} = \frac{1}{7}$$

$$y - 12 = \frac{1}{7}(x - 4)$$

#14 Write and equation of the perpendicular bisector of AB

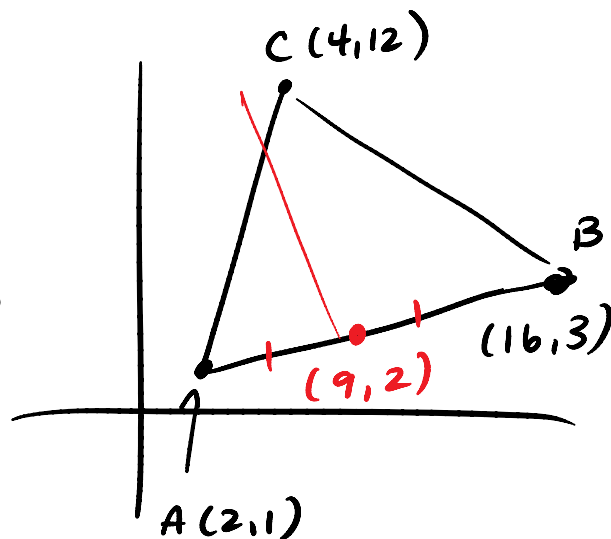
$$m_{AB} = \frac{1}{7}$$

$$\perp m = -7$$

$$y - 2 = -7(x - 9)$$

$$y - 2 = -7x + 63$$

$$y = -7x + 65$$



#15 Write an equation of the altitude from C to AB

$$m = -7 \quad y - 12 = -7(x - 4)$$

(4, 12)

$$y - 12 = -7x + 28$$

$$\boxed{y = -7x + 40}$$

#16 Write an equation of the median from C to AB

(4, 12)

$$m = \frac{12 - 2}{4 - 9} = \frac{10}{-5} = -2$$

(9, 2)

$$y - 2 = -2(x - 9)$$

$$y - 2 = -2x + 18$$

$$\boxed{y = -2x + 20}$$

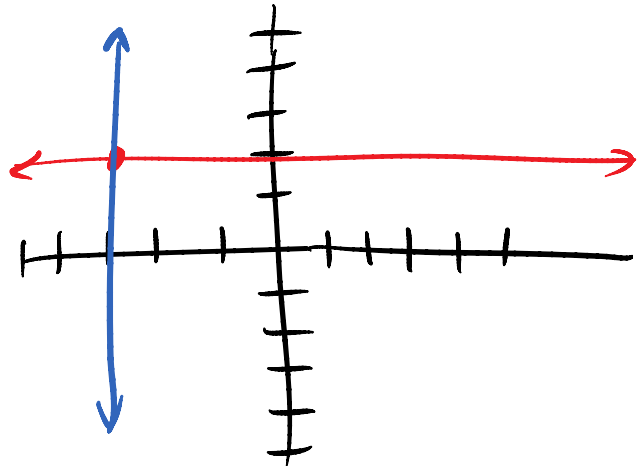
#17 Find the slope of the line passing through the midpoints of AC and BC

$$\boxed{\frac{1}{7}}$$

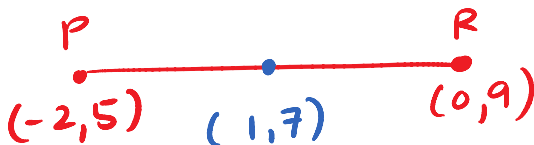
#18 A line passes through a point 3 units to the left of and 2 units above the origin. Write an equation of the line if it is parallel to

h a. The x-axis  $y = 2$

h b. The y axis  $x = -3$



#19 If  $P = (-2, 5)$  and  $R = (0, 9)$ , write, in point slope form, and equation of the perpendicular bisector of PR



$$m_{PR} = \frac{9 - 5}{0 - (-2)} = \frac{4}{2} = 2$$

$$\perp m = -\frac{1}{2}$$

$$\boxed{y - 7 = -\frac{1}{2}(x - 1)}$$

#23 Find an equation of the line whose intercepts are twice those of the graph:  $2x + 5y = 10$

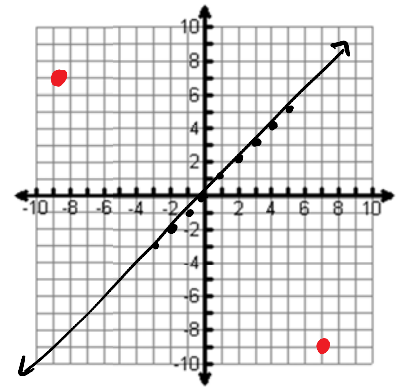
x int: 10 (10, 0)  $m = \frac{4}{-10} = -\frac{2}{5}$  y - 0 =  $-\frac{2}{5}(x - 10)$   
y int: 4 (0, 4)

$$\boxed{y = -\frac{2}{5}x + 4}$$

x int: 5  
y int: 2

#26 Find the reflection of the point  $(-9, 7)$  over the reference line  $y = x$

$(7, -9)$



#27 Find an equation of the reflection of the graph of  $y = \frac{3}{4}x - 1$  over the

h a. X-axis

h b. Y axis

h c. Line  $y = x$

