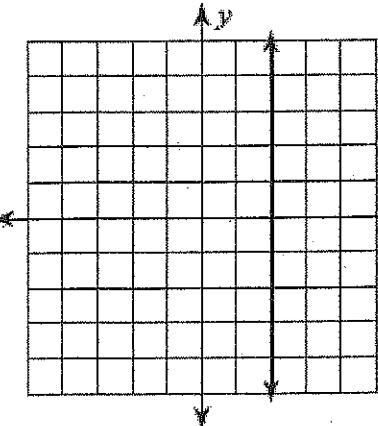Date:_____

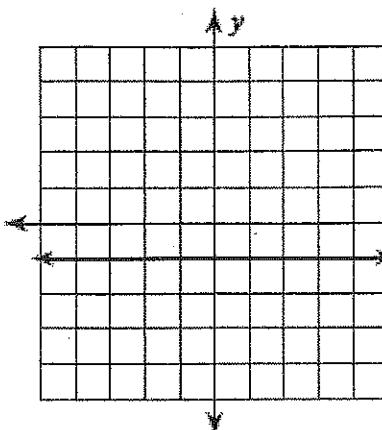1. Find the slope of each line and write a linear equation for each graph.

(a)

Slope:
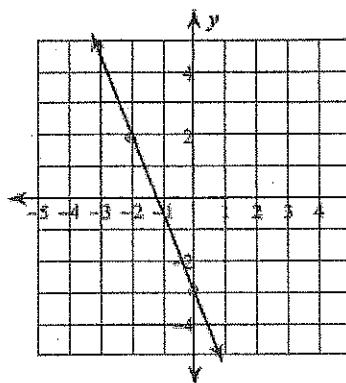undefined

Equation of line:
$X = 2$

(b)

Slope:
0

Equation of line:
$y = -1$

2. Find the slope of the line through $(13, 1)$ and $(-19, 11)$

$$\frac{11-1}{-19-13} = \frac{10}{-32} = \boxed{\frac{-5}{16}}$$

3. Write the slope-intercept form of the line.

$y = mx + b$

$$\boxed{y = \frac{-5}{2}X - 3}$$

4. The slope of a line is $\frac{-3}{4}$ and the line contains the points (-3, 6) and (9, k).
What is the value of k?

x_1, y_1 x_2, y_2

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

$$\frac{-3}{4} = \frac{k-6}{9-(-3)}$$

$$\frac{-3}{4} = \frac{k-6}{12}$$

$$-3(12) = 4(k-6)$$
$$-36 = 4k - 24$$
$$+24 \qquad +24$$
$$\frac{-12}{4} = \frac{4k}{4}$$
$$\boxed{-3 = k}$$
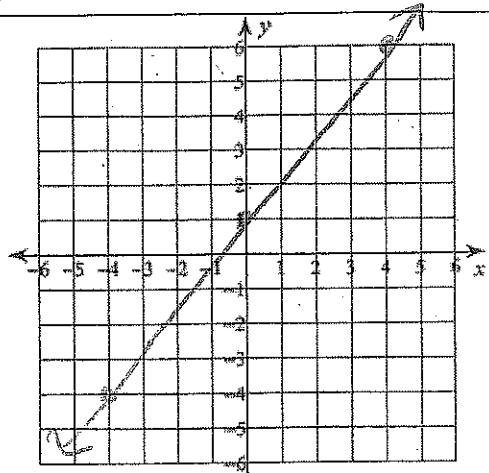
5. Part A: Solve for y

$$4y - 4 = 5x$$
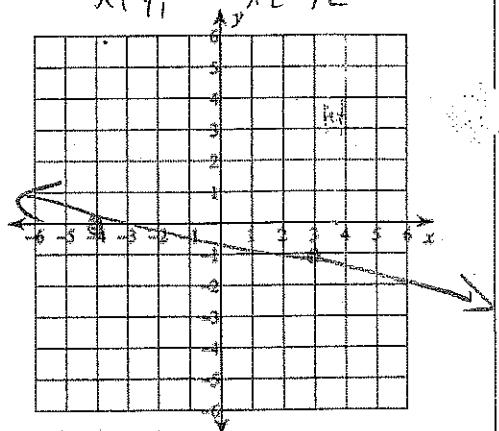$$+4 \qquad +4$$
$$\frac{4y}{4} = \frac{5x}{4} + \frac{4}{4}$$
$$\boxed{y = \frac{5}{4}x + 1}$$

Part B: Graph

6. Graph a line through $(-4,0)$ and perpendicular to the line through $(-2,5)$ and $(-4,-9)$.

$\overset{X_1\ Y_1}{}\qquad\overset{X_2\ Y_2}{}$

$$\frac{-9-5}{-4\ominus 2} = \frac{-14}{-2} = 7$$

$$m_\perp = \frac{-1}{7}$$

Directions: Write the slope- intercept form of the line given the following information.

7. *through:* $(-5,-3)$, *slope* $= \frac{6}{5}$

$$y = mx + b$$
$$-3 = \frac{6}{5}(-5) + b$$
$$-3 = \frac{-30}{5} + b$$
$$-3 = -6 + b$$
$$\frac{+6\qquad +6}{3 = b}$$

$$\boxed{y = \frac{6}{5}x + 3}$$

8. *through:* $(-2,-1)$ *and* $(-3,2)$

$$m = \frac{2 \ominus 1}{-3 \ominus 2} = \frac{3}{-1} = -3$$

$$y = mx + b$$
$$-1 = -3(-2) + b$$
$$-1 = 6 + b$$
$$\frac{-6\qquad -6}{-7 = b}$$

$$\boxed{y = -3x - 7}$$

9. *through:* $(4,1)$, *parallel to* $y = -\frac{3}{4}x + 2$

$$m_{\parallel} = \frac{-3}{4}$$

$$y = mx + b$$
$$1 = -\frac{3}{4}(4) + b$$
$$1 = -\frac{12}{4} + b$$
$$1 = -3 + b$$
$$4 = b$$

$$\boxed{y = -\frac{3}{4}x + 4}$$

10.

through: $(-2,4)$, *perpendicular to* $y = \frac{2}{3}x - 3$

$$m_\perp = \frac{-3}{2}$$

$$y = mx + b$$
$$4 = -\frac{3}{2}(-2) + b$$
$$4 = \frac{6}{2} + b$$
$$4 = 3 + b$$
$$1 = b$$

$$\boxed{y = -\frac{3}{2}x + 1}$$