EMA
Slope

Name KEY
Date _____ Period _____

Find the slope of the following points using the formula for slope. $m = \frac{rise}{run} = \frac{y_2 - y_1}{x_2 - x_1}$

1. (6, 3) and (7, −4)

$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{-4-3}{7-6} = \frac{-7}{1} = \boxed{-7}$

2. (−1, 2) and (3, 4)

$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{4-2}{3-(-1)} = \frac{2}{4} = \boxed{\frac{1}{2}}$

3. (1, 2) and (−1, 2)

$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{2-2}{-1-1} = \frac{0}{-2} = \boxed{0}$

4. (1, −2) and (1, 3)

$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{3-(-2)}{1-1} = \frac{5}{0} = \boxed{\text{UNDEFINED}}$

Write the equation of the following lines. Your final answer should be in *slope-intercept form* $(y = mx + b)$.

5. slope = 2, y-intercept = −6

$y = 2x - 6$

6. slope = $-\frac{3}{5}$, y-intercept = 0

$y = -\frac{3}{5}x + 0$ or $y = -\frac{3}{5}x$

7. slope = 3, passes thru (5, −2)

$x_1\ y_1$

$y - y_1 = m(x - x_1)$

$y - (-2) = 3(x - 5)$

$y + 2 = 3x - 15$

$\boxed{y = 3x - 17}$

or

$y = mx + b$

$-2 = 3(5) + b$

$-2 = 15 + b$

$-17 = b$

$\boxed{y = 3x - 17}$

8. slope = $-\frac{5}{3}$, , passes thru (−3, −5)

$x_1\ y_1$

$y - y_1 = m(x - x_1)$

$y - (-5) = -\frac{5}{3}(x - (-3))$

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

$\boxed{y = -\frac{5}{3}x - 10}$

or

$y = mx + b$

$-5 = -\frac{5}{3}(-3) + b$

$-5 = -5 + b$

$-10 = b$

$\boxed{y = -\frac{5}{3}x - 10}$

9. horizontal line that passes thru (−3, 4)

$x_1\ y_1$

$m = 0$

$y - y_1 = m(x - x_1)$

$y - 4 = 0(x - (-3))$

$y - 4 = 0x + 0$

$y - 4 = 0$

$\boxed{y = 4}$

or

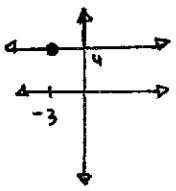
$y = mx + b$

$4 = 0(-3) + b$

$4 = b$

$y = 0(x) + 4$

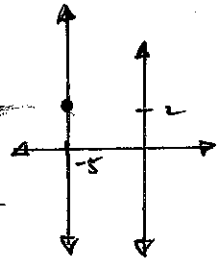
$\boxed{y = 4}$



10. Vertical line that passes thru (−5, 2)

NO SLOPE

$\boxed{x = -5}$



Write the equation of the following lines. Your final answer should be in *slope-intercept form* $(y = mx + b)$.

11. $(-1, 3)$ and $(2, -3)$ — x_1, y_1 x_2, y_2

$m = \frac{-3-3}{2-(-1)} = \frac{-6}{3} = -2$

$y - y_1 = m(x - x_1)$ or $y = mx + b$

$y - 3 = -2(x-(-1))$

$y - 3 = -2(x+1)$

$y - 3 = -2x - 2$

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

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

$3 = 2 + b$

$1 = b$

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

12. $(2, -2)$ and $(3, 2)$ — x_1, y_1 x_2, y_2

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

$y - y_1 = m(x - x_1)$ or $y = mx + b$

$y - (-2) = 4(x - 2)$

$y + 2 = 4x - 8$

$\boxed{y = 4x - 10}$

$-2 = (4)(2) + b$

$-2 = 8 + b$

$-10 = b$

$\boxed{y = 4x - 10}$

13. $(5, 9)$ and $(3, 9)$ — x_1, y_1 x_2, y_2

$M = \frac{9-9}{3-5} = \frac{0}{-2} = 0$

$y - y_1 = m(x - x_1)$ or $y = mx + b$

$y - 9 = 0(x - 5)$

$y - 9 = 0$

$\boxed{y = 9}$

$9 = 0(5) + b$

$9 = 0 + b$

$9 = b$

$y = 0x + 9$

$\boxed{y = 9}$

14. $(\frac{7}{3}, \frac{4}{3})$ and $(-\frac{1}{3}, \frac{2}{3})$ — x_1, y_1 x_2, y_2

$M = \frac{2/3 - 4/3}{-1/3 - 7/3} = \frac{-2/3}{-8/3} = -\frac{2}{3} \div \frac{-8}{3} = \frac{-2}{3} \cdot \frac{-3}{8}$

$M = 1/4$

$y - y_1 = m(x - x_1)$ or $y = mx + b$

$y - 4/3 = 1/4(x - 7/3)$

$y - 4/3 = 1/4 x - 7/12$

$\boxed{y = 1/4 x + 3/4}$

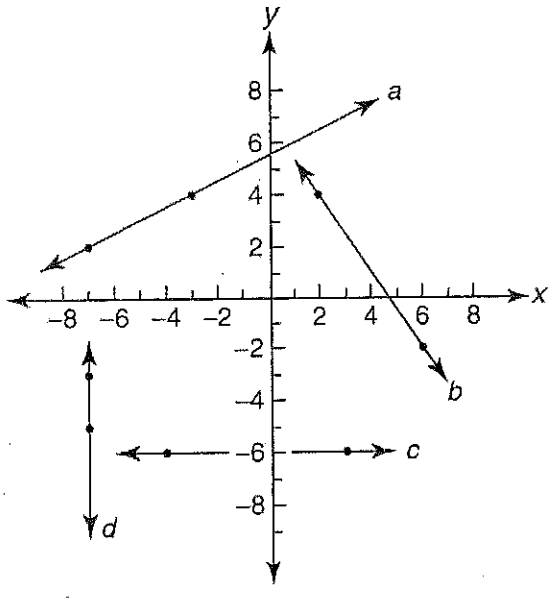
$4/3 = 1/4(7/3) + b$

$4/3 = 7/12 + b$

$3/4 = b$

$\boxed{y = 1/4 x + 3/4}$

Find the slopes of each of the lines below.



a = $2/4 = 1/2$

b = $-6/4 = -3/2$

c = $0/8 = 0$

d = $2/0$ = UNDEFINED