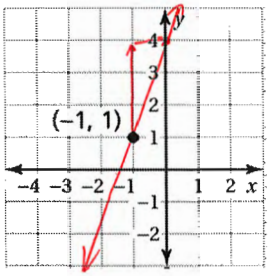
Name: Answers Period: _____

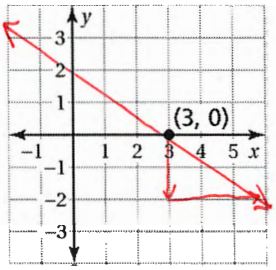
4.7 Writing Equations in Point-Slope Form and Slope-Intercept Form

Draw a line with the given slope through the given point. Afterwards, use the **point-slope** form to write an equation of the line with the given slope that passes through the given point.

1) $m = 3$



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



Write in **point-slope** form an equation of the line that passes through the given point and has the given slope.

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

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

4) $(-3, 5)$; $m = -\frac{4}{3}$

$y-5 = -\frac{4}{3}(x+3)$

5) $(2, 2)$; $m = -1$

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

6) $(-1, -5)$; $m = 4$

$y+5 = 4(x+1)$

Write in **slope-intercept** form an equation of the line that passes through the given points.

7) $(-3, -4), (6, -1)$

$m = \frac{-1-4}{6-3} = \frac{3}{9} = \frac{1}{3}$

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

$y+4 = \frac{1}{3}x+1$

$-4 \quad -4$

$y = \frac{1}{3}x-3$

8) $(-4, 12), (2, -3)$

$m = \frac{-3-12}{2-4} = \frac{-15}{6} = \frac{-5}{2}$

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

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

$-3 \quad -3$

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

9) $(-1, -2), (1, -6)$

$m = \frac{-6--2}{1--1} = \frac{-4}{2} = -2$

$y+6 = -2(x-1)$

$y+6 = -2x+2$

$-6 \quad -6$

$\boxed{y = -2x-4}$

10) $(-2, -9), (1, 6)$

$m = \frac{6--9}{1--2} = \frac{15}{3} = 5$

$y-6 = 5(x-1)$

$y-6 = 5x-5$

$+6 \quad +6$

$\boxed{y = 5x+1}$

11) $(2, 3), (3, 7)$

$m = \frac{7-3}{3-2} = \frac{4}{1} = 4$

$y-3 = 4(x-2)$

$y-3 = 4x-8$

$+3 \quad +3$

$\boxed{y = 4x-5}$

12) $(-5, -8), (10, 4)$

$m = \frac{4--8}{10--5}$

$= \frac{12}{15} = \frac{4}{5}$

$y-4 = \frac{4}{5}(x-10)$

$y-4 = \frac{4}{5}x-8$

$+4 \quad +4$

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

this is negative.

13) You are pulling a kite back to the ground at a rate of 2 feet per second. After 4 seconds, the kite is 16 feet above the ground.

slope $\uparrow$ x_1 $\uparrow$ y_1 $\uparrow$

a. Write an equation that represents the height y (in feet) above the ground after x seconds.

$y-16 = -2(x-4)$

$y-16 = -2x+8$

$+16 \quad +16$

$\boxed{y = -2x+24}$

b. At what height was the kite when you started pulling it in?

24 ft above ground

c. When does the kite touch the ground?

height $\rightarrow$ $y = -2x+24$

$0 = -2x+24$

$\boxed{x = 12 \text{ seconds}}$