Name Answers Date

Linear Equations Review

Solve for y.

1) $x + 4y = -12$

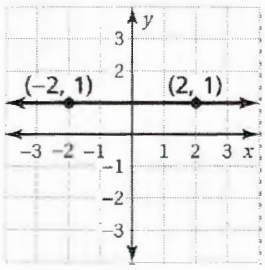
$y = \frac{1}{4}x - 3$

2) $2x - 3y = 3$

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

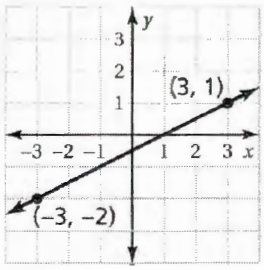
Find the slope of the line.

3)



$m = 0$

4)



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

5) Which is steeper, a slide that rises 3 feet for every 2 feet of run, or a sliding pole that rises 5 feet for every 3 feet of run? Explain.

The sliding pole has a greater slope of $\frac{5}{3}$ compared to the slide's slope of $\frac{3}{2}$.

6) The equation of a line is $y = 2x - 3$. Write the equation of a line parallel to this line.

example: $y = 2x + 1$

Find the slope and the y-intercept of the graph of the linear equation.

7) $y = 3x - 6$

$m = 3$

$b = -6$

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

$m = -\frac{3}{4}$

$b = -5$

9) $y = \frac{7}{9}x - 3\frac{1}{3}$

$m = \frac{7}{9}$

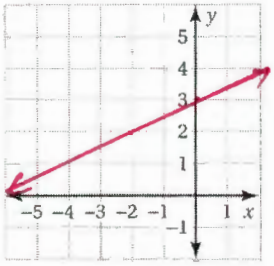
$b = -3\frac{1}{3}$

10) The position y (in meters) of a submarine after x minutes is $y = -8x - 12$. Interpret the y-intercept and the slope. Clue: what is their relationship to the submarine's position and speed?

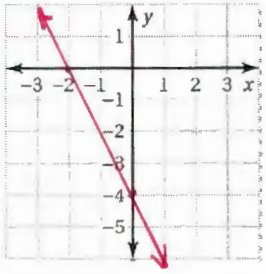
The y-int. (-12) is the depth (12m) at which the submarine starts at 0 min. The slope of -8 is the speed at which it descends, -8 m/min.

Graph the linear equation.

11) $-2x + 4y = 12$



12) $2x + y = -4$



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

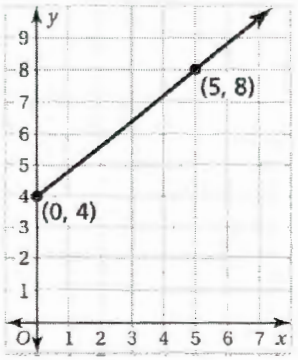
13) $(0, 1), (2, 4)$

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

14) $(2, 8), (-2, 10)$

$y = -\frac{1}{2}x + 9$

15) The graph shows the height y (in feet) of a kite x seconds after you start letting out the string.



a. Find and interpret the slope (the rate of change) of the graph.

$m = \frac{4}{5}$. The kite rises 4 feet for every 5 seconds

b. Write an equation of the line of the graph.

$y = \frac{4}{5}x + 4$

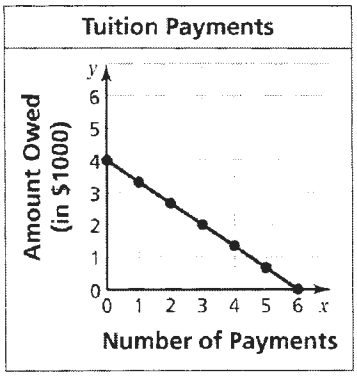
c. What is the height of the kite after 15 seconds?

16 ft.

d. Interpret the y-intercept of the graph.

When you first let out the string, the height of the kite is 4 feet.

16) Carla plotted the points on the graph below to show how the amount she owes for tuition decreases as the number of tuition payments increases. The slope of the line segment joining these points is $-\frac{2}{3}$.



What does the slope of the line segment represent?

A. Each payment decreases the amount owed by $4,000.

B. Each payment decreases the amount owed by $0.66.

C. For every 3 payments, the amount owed decreases by $2,000.

D. For every 2 payments, the amount owed decreases by $3,000.

16) What value of k makes the equation below true?

$$5k - 12 = 22$$

$k = 6.8$

17) A line contains the points $(0, 9)$ and $(6, 6)$. Which point is also on this line?

F. $(2, 5)$ G. $(4, 7)$ H. $(-8, 5)$ I. $(4, 4)$

18) Chris borrowed money from her brother. Each week she pays him $5 toward her debt. After 8 weeks, she has $8 left to pay. This situation is modeled by a line with a slope of -5 that contains the point $(9, 3)$. At what point does this line pass through the y-axis?

A. $(0, 45)$ C. $(0, -42)$

B. $(0, 24)$ D. $(0, 48)$

19) Vivian charges \$4 for bracelets and \$5 for earrings. Her cost to make x bracelets and y earrings is \$60. The equation $4x + 5y = 60$ represents this situation. The graph of this equation is a line. What is the slope of the line?

F. -4

G. -0.8

H. 0.8

I. 12

20) The math teacher asked Edith, "How old are you?" "Sixty years less than five times my brother's age," she answered. "That doesn't help me," replied the teacher. "Yes, it does," said Edith, "He and I are twins!" How old is Edith?

A. 10

B. 12

C. 15

D. 55

21) A line passes through the point $(1, 3)$ and has a slope of 2. Which of these points also lies on this line?

F. $(1, 5)$

G. $(2, 6)$

H. $(3, 5)$

I. $(3, 7)$