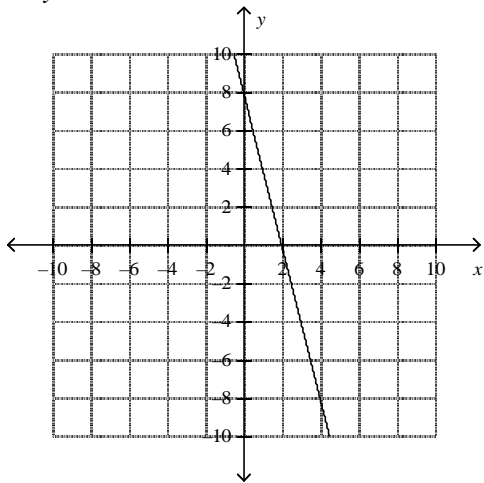


Comprehensive Slope Review Problems -- DO ALL!!

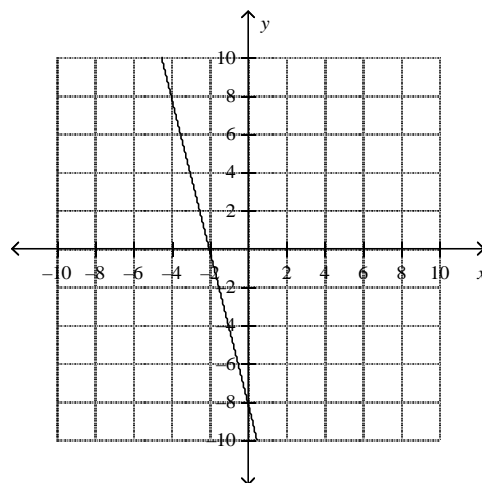
Match the equation with its graph.

_____ 1. $-8x - 2y = 16$

a.



b.



Find an equation for the line:

_____ 2. through $(2, 6)$ and perpendicular to $y = -\frac{5}{4}x + 1$.

a. $y = \frac{4}{5}x + \frac{22}{5}$

b. $y = \frac{5}{4}x + \frac{7}{2}$

_____ 3. through $(-4, 6)$ and parallel to $y = -3x + 4$.

a. $y = -3x - 6$

b. $y = 3x + 18$

_____ 4. through $(-7, -4)$ and vertical.

a. $x = -7$

b. $y = -4$

Short Answer

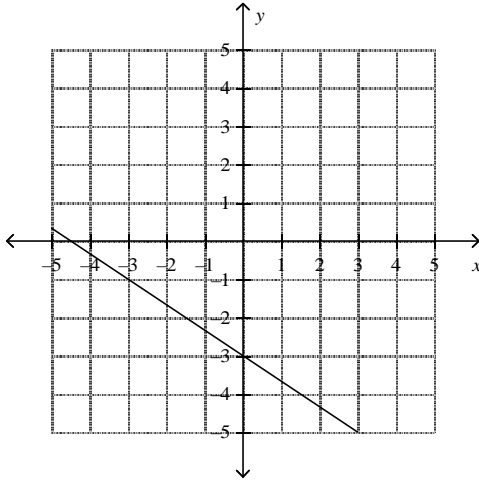
Find the slope of the line through the pair of points.

5. $(-\frac{1}{2}, -\frac{1}{2})$ and $(-\frac{1}{3}, -\frac{2}{5})$

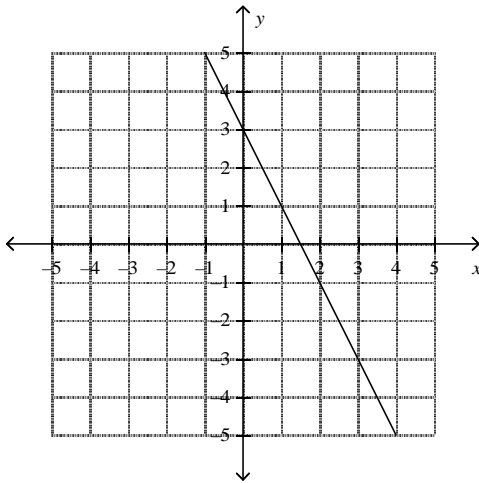
6. $(-\frac{1}{2}, \frac{4}{5})$ and $(-\frac{2}{3}, \frac{3}{4})$

Find the slope of the line.

7.



8.



Write an equation of the line with the given slope and y-intercept

9. slope: $\frac{1}{2}$, y-intercept: -9

Write an equation of the line that passes through each point with the given slope.

10. $(5, -5)$, $m = 5$

Write an equation of the line that passes through the pair of points.

11. $(-5, 4)$, $(5, -3)$

12. $(-6, 8)$, $(-8, -8)$

Write the point-slope form of an equation for a line that passes through the point with the given slope.

13. $(-2, 5)$, $m = 3$

Write the equation in slope-intercept form.

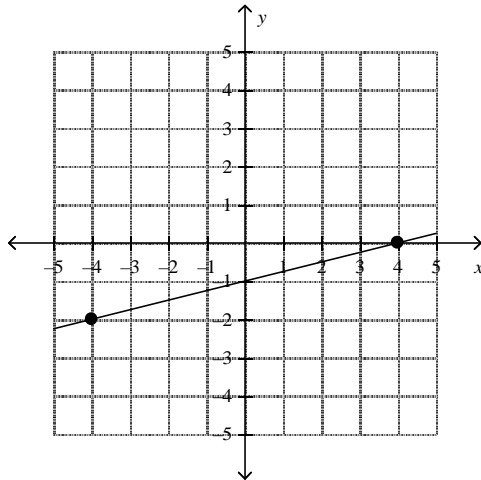
14. $y - 2 = \frac{3}{2}(x - 1)$

Find the slope and y-intercept of the line.

15. $6x + 15y = 60$

Write the slope-intercept form of the equation for the line.

16.



17. Write an equation of a line that has the same slope as $2x - 5y = 12$ and the same y-intercept as $4y + 24 = 5x$.

Write an equation in point-slope form for the line through the given point with the given slope.

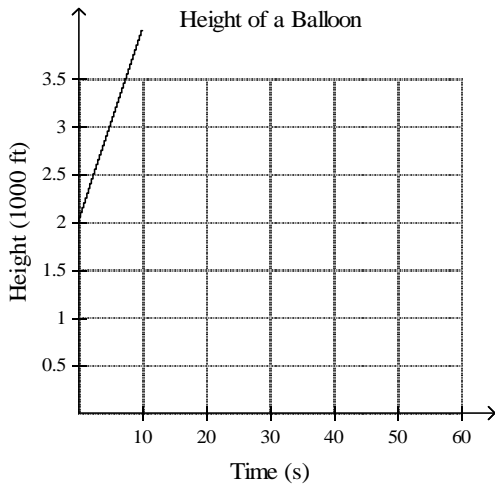
18. $(4, -6); m = \frac{3}{5}$

19. A line passes through $(1, -5)$ and $(-3, 7)$.

- a. Write an equation for the line in point-slope form.
- b. Rewrite the equation in slope-intercept form.

20. Giselle pays \$220 in advance on her account at the athletic club. Each time she uses the club, \$5 is deducted from the account. Model the situation with a linear function and a graph.

21. A balloon is released from the top of a building. The graph shows the height of the balloon over time.



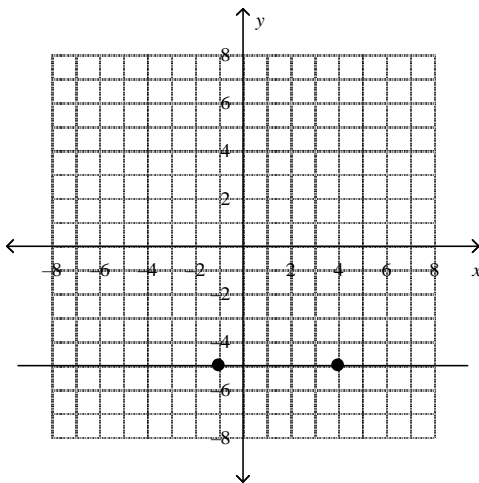
- a. What does the slope and y-intercept reveal about the situation?
- b. For a similar situation, the slope 45 is and the y-intercept is 750. What can you conclude?

Find the rate of change for the situation.

22. You run 6 miles in one hour and 12 miles in two hours.
23. The table shows the height of a plant as it grows.
 - a. Model the data with an equation.
 - b. Based on your model, predict the height of the plant at 12 months.

| Time (months) | Plant Height (cm) |
|---------------|-------------------|
| 3 | 24 |
| 5 | 40 |
| 7 | 56 |
| 9 | 72 |

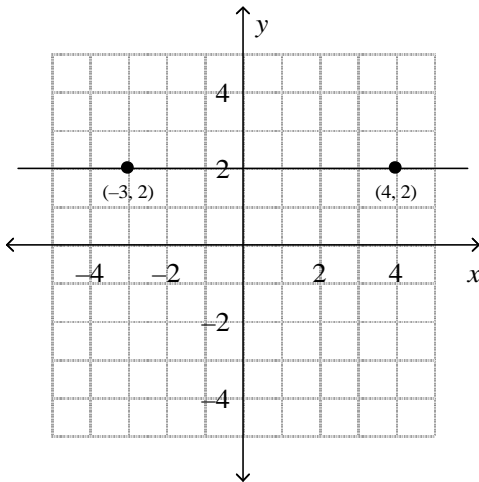
24. Find the slope of the line.



25. Find the point-slope form of the equation of the line passing through the points $(5, 2)$ and $(-1, -7)$.

Find the slope of the line.

26. $-4x + 2y = -10$
27. A new candle is 24 inches tall and melts at a rate of 3 inches per hour.
- Write an equation that models the height h after t hours.
 - Sketch the graph of the equation.
28. A 3 hour guided taxi cab tour of London costs \$24 and a 9 hour guided tour costs \$54. Develop an equation which models the cost of London taxi cab tours.
29. During the winter you entered an ice carving contest. Your ice sculpture was 20 ft tall after being out in above freezing weather for 2 hours. After 3 hours, your sculpture was 12 feet tall.
- Write a linear equation to model the sculpture
 - When will your ice sculpture be fully melted?
30. Find the slope of the line.



Essay

31. A manufacturing company's profits are modeled by the equation $y = -45,000 + 1.2x$, where y dollars is the total profit and x is the number of items manufactured. Graph the equation and explain what the x - and y -intercepts represent.
32. Write the equation of the line that contains the point $(8, -3)$ and is perpendicular to $4x - 3y = 10$. Graph the equation. Write the equation in standard form. Show your work.

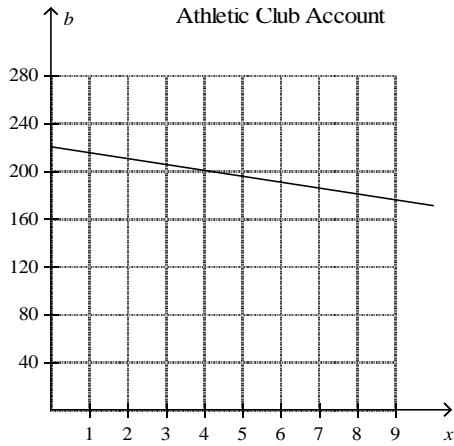
Comprehensive Slope Review Problems -- DO ALL!!

Answer Section

MULTIPLE CHOICE

1. B
2. A
3. A
4. A
5. $\frac{3}{5}$
6. $\frac{3}{10}$
7. $-\frac{2}{3}$
8. -2
9. $y = \frac{1}{2}x - 9$
10. $y = 5x - 30$
11. $y = -\frac{7}{10}x + \frac{1}{2}$
12. $y = 8x + 56$
13. $y - 5 = 3(x + 2)$
14. $y = \frac{3}{2}x + \frac{1}{2}$
15. $-\frac{2}{5}; 4$
16. $y = \frac{1}{4}x - 1$
17. $y = \frac{2}{5}x - 6$
18. $y + 6 = \frac{3}{5}(x - 4)$
19. $y + 5 = -3(x - 1); y = -3x - 2$

20.



$$b = 220 - 5x$$

21. The balloon starts at a height of 2000, and rises at a rate of 200; The balloon starts at a height of 750, and rises at a rate of 45.

22. 6 miles per hour

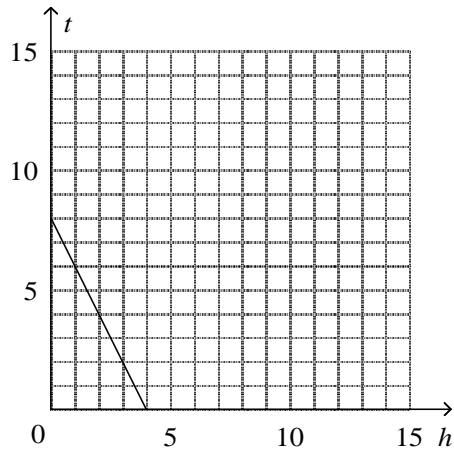
23. $y - 24 = 8(x - 3)$; 96 cm

24. 0

25. $y - 2 = \frac{7}{3}(x - 5)$

26. 2

27. $t = -3h + 24$



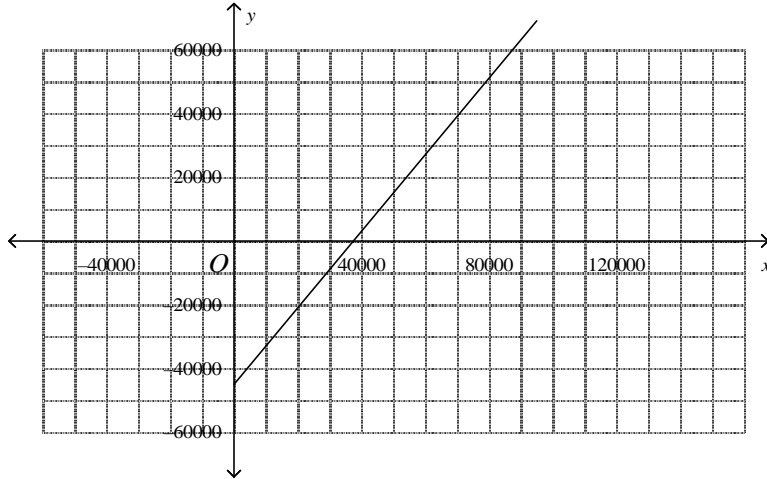
28. $y = 5x + 9$

29. $y = -8x + 36$; 4 1/2 hours

30. 0

31.

[4]



The y -intercept represents the set-up costs and the x -intercept represents the least number of items for which the company does not lose money, or a break-even point.

[3] minor errors in graph or explanation

[2] correct graph with incorrect explanation or incorrect graph with correct explanation

[1] no graph and errors in explanation or no explanation and errors in graph

32.

[4] $4x - 3y = 10$

$$-3y = -4x + 10$$

$$y = \frac{4}{3}x - \frac{10}{3}$$

The slope of the line perpendicular to this line is $-\frac{3}{4}$. Using the point-slope form of the equation, the line is

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

$$y + 3 = -\frac{3}{4}x + 6$$

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

The standard form of this equation is $3x + 4y = 12$ or $\frac{3}{4}x + y = 3$.

