Pre-Algebra Blizzard Bag Number 3

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Express each ratio as a fraction in simplest form.

_____ 1. 34 laptops out of 116 computers

a. $\frac{35}{116}$ c. $\frac{17}{59}$

b. $\frac{17}{58}$ d. $\frac{58}{17}$

Express each ratio as a unit rate. Round to the nearest tenth, if necessary.

_____ 2. 100 miles in 2.5 hours

a. 40 miles per hour   c. $\frac{100}{2.5}$ miles per hour

b. 250 miles per hour   d. $\frac{1000}{25}$ miles per hour

_____ 3. $175 for 5 football game tickets

a. $40 per ticket   c. $\frac{175}{5}$ per ticket

b. $35 per ticket   d. $\frac{1750}{50}$ per ticket

_____ 4. 5 inches of rain in 24 hours

a. 2 inches per hour   c. 0.2 inch per hour
b. 0.3 inch per hour   d. 20 inches per hour

_____ 5. 325.4 miles on 17.3 gallons

a. 18.8 miles per gallon   c. 18.809 miles per gallon
b. 188 miles per gallon   d. 18.81 miles per gallon

_____ 6. $5 for 10 cans of soup

a. $2.00 per can   c. $0.05 per can
b. $0.50 per can   d. $5.00 per can

_____ 7. $575.28 for 12 textbooks

a. $0.02 per textbook   c. $479.40 per textbook
b. $47.94 per textbook   d. $4.79 per textbook

Solve each proportion.

_____ 8. $\frac{8}{3} = \frac{d}{21}$

a. 56   c. 72
b. 64   d. 48

_____ 9. $\frac{12}{b} = \frac{6}{9}$

a. 27   c. 9
b. 18   d. 36

Write a proportion that could be used to solve for each variable. Then solve.

_____ 10. 12 balls in 2 boxes
78 balls in x boxes

   a. $\frac{12}{2} = \frac{78}{x}$; $x = 13$ c. $\frac{12}{2} = \frac{78}{x}$; $x = 12$

   b. $\frac{2}{12} = \frac{78}{x}$; $x = 468$ d. $\frac{12}{2} = \frac{x}{78}$; $x = 458$

_____ 11. 24 buttons in 4 packages
168 buttons in m packages

   a. $\frac{4}{24} = \frac{168}{m}$; $m = 1008$ c. $\frac{24}{4} = \frac{168}{m}$; $m = 26$

   b. $\frac{24}{4} = \frac{168}{m}$; $m = 28$ d. $\frac{24}{4} = \frac{m}{168}$; $m = 1000$

_____ 12. d dollars for 18.4 quarts
24 dollars for 6 quarts

   a. $\frac{24}{d} = \frac{18.4}{6}$; $d = 7.8$ c. $\frac{d}{24} = \frac{18.4}{6}$; $d = 73.6$

   b. $\frac{d}{24} = \frac{18.4}{6}$; $d = 72$ d. $\frac{d}{24} = \frac{6}{18.4}$; $d = 8$

The Empire State Building in New York City is 1250 feet tall. It took 30,000 workers only 1 year and 45 days to build, which is a record for a skyscraper. On a scale model of the building, the height is 25 inches.

_____ 13. What is the scale of the Empire State Building model?
   a.   1 inch = 50 feet   c.   1 inch = 48 feet
   b.   1 inch = 62.5 feet   d.   1 inch = 47 feet

_____ 14. What is the scale factor of the Empire State Building model?

   a. $\frac{1}{50}$ c. $\frac{1}{75}$

   b. $\frac{1}{600}$ d. $\frac{1}{500}$

Express the percent as a fraction or mixed number in simplest form.

_____ 15. 47%

   a. $\frac{47}{100}$ c. $\frac{100}{47}$

   b. $\frac{47}{10}$ d.   47

_____ 16. 0.5%

   a. $\frac{1}{200}$ c. $\frac{1}{20}$
   b.   5   d.   200

Express the fraction as a percent. Round to the nearest tenth percent, if necessary.

_____ 17. $\frac{1}{2}$
   a.   200%   c.   50%
   b.   0.5%   d.   2%

____ 18. $\frac{21}{13}$
  a. 61.9%
  b. 0.6%
  c. 1.6%
  d. 161.5%

Express each percent as a decimal.

____ 19. 94%
  a. 0.094
  b. 0.94%
  c. 0.94
  d. 9.4

____ 20. 6.3%
  a. 0.063%
  b. 0.0063
  c. 0.63
  d. 0.063

Express each decimal as a percent.

____ 21. 1.88
  a. 18.8%
  b. 188
  c. 1.88%
  d. 188%

____ 22. 0.028
  a. 0.28%
  b. 0.028%
  c. 2.8
  d. 2.8%

Use the percent proportion to solve each problem. Round to the nearest tenth.

____ 23. 24 is what percent of 120?
  a. 20%
  b. 28.8%
  c. 500%
  d. 24%

____ 24. 30 is 75% of what number.
  a. 22.5
  b. 4
  c. 400
  d. 40

____ 25. What is 78% of 40?
  a. 195
  b. 51.3
  c. 3.12
  d. 31.2

____ 26. What is 0.5% of 84?
  a. 0.42
  b. 16,800
  c. 420
  d. 4.2

____ 27. What percent of 5 is 3.2?
  a. 156.3%
  b. 0.16%
  c. 64%
  d. 24%

____ 28. The United States is the world's leading exporter of wheat with approximately 27.8 billion metric tons per year. Suppose Turkey exports 10% of the U.S. total. About how many metric tons are exported by Turkey?
  a. 18 billion
  b. 8 billion
  c. 5 billion
  d. 3 billion

____ 29. A television that normally sells for $459 is on sale at a 30% discount. What is the sale price of the television?
  a. $321.30
  b. $420
  c. $596.30
  d. $137.70

____ 30. A board game that normally sells for $34.95 is on sale at an 18% discount. What is the sale price of the board game?

    a. $28.66   c. $41.24
    b. $16.95   d. $6.29

Find the percent of increase. Round to the nearest tenth, if necessary.

____ 31. from 15 lb to 31 lb

    a.   51.6% increase   c.   93.8% increase
    b.   48.4% increase   d.   106.7% increase

Find the percent of decrease. Round to the nearest tenth, if necessary.

____ 32. from $207 to $127

    a.   63% decrease   c.   258.8% decrease
    b.   38.6% decrease   d.   163% decrease

____ 33. A board is cut so that its length is changed from 8 feet to 6.5 feet. What is the percent of change in length? Round your answer to the nearest tenth, if necessary.

    a.   −18.8%   c.   18.8%
    b.   −23.1%   d.   81.2%

____ 34. When the new computer lab opened, there were 18 computers. By the end of first week, there were 25 computers. Find the percent of change in the number of computers? Round your answer to the nearest tenth, if necessary.

    a.   −38.9%   c.   38.9%
    b.   72%   d.   33.3%

Find four solutions of the equation. Write the solutions as ordered pairs.

____ 35. $y = -3x - 6$

    a. $\left\{ (-4, 3), (-7, 15), (5, -24), (-6, 12) \right\}$

    b. $\left\{ (-4, 6), (-7, 15), (5, -21), (-6, 12) \right\}$

    c. $\left\{ (-4, 6), (-6, 15), (5, -21), (-7, 12) \right\}$

    d. $\left\{ (4, 6), (-7, 15), (5, 3), (-4, 12) \right\}$
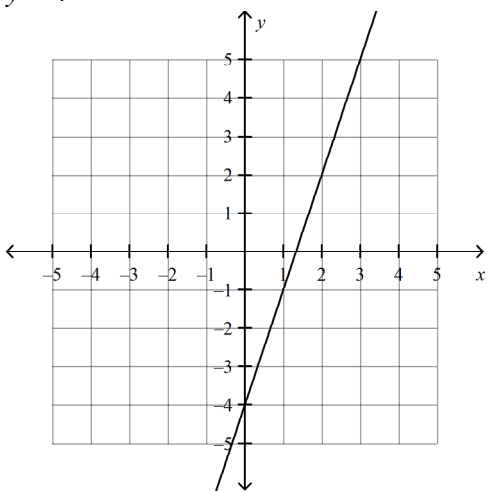
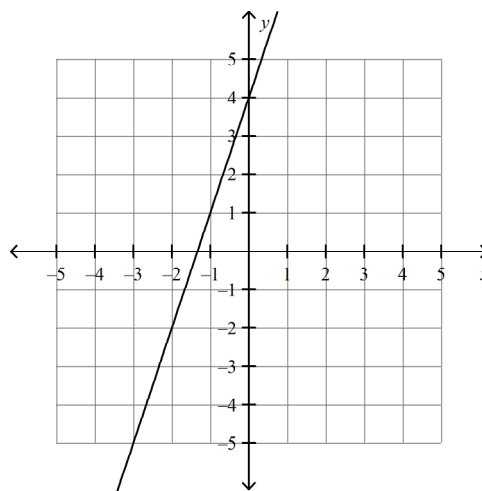*Graph each equation by plotting ordered pairs.*

____ 36. $y = 4x + 4$

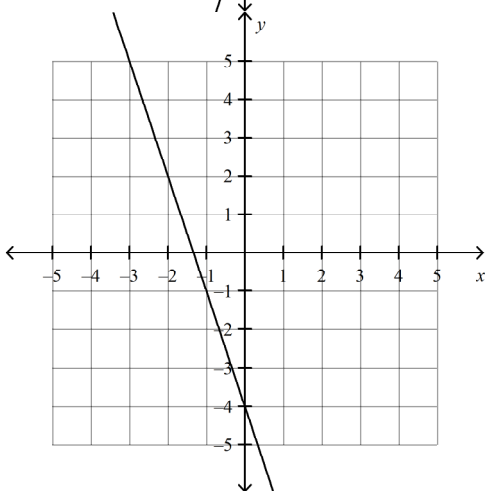a.
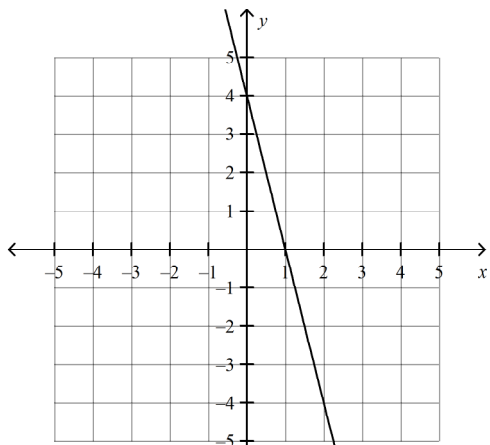
c.
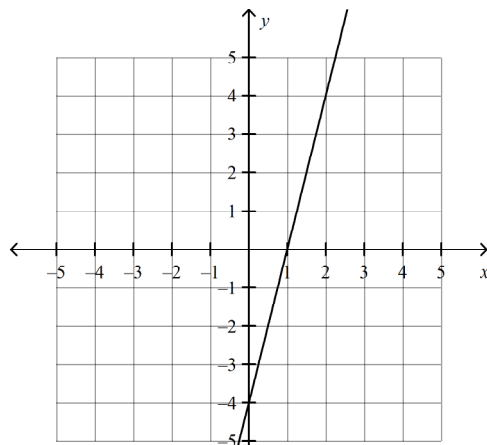
b.
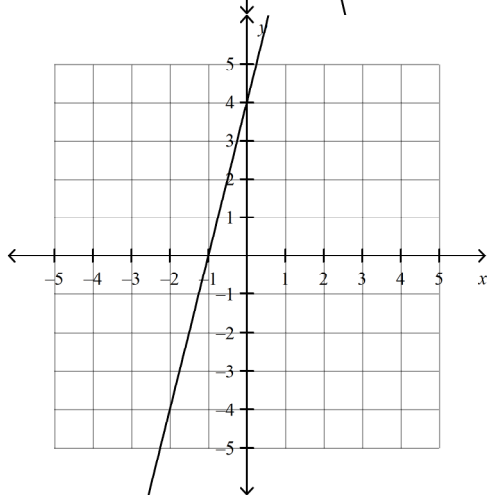
d.
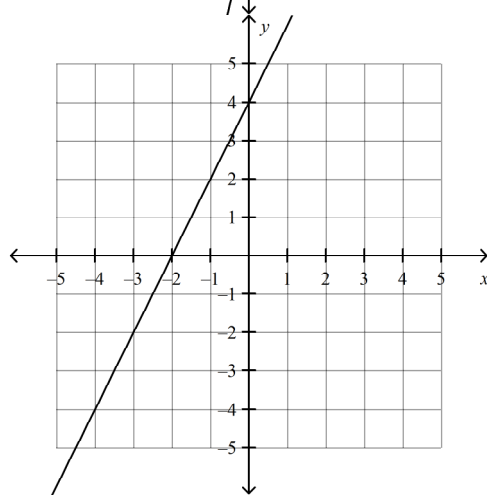
_____ 37. $3x - y = 4$

a.

c.

b.

d.
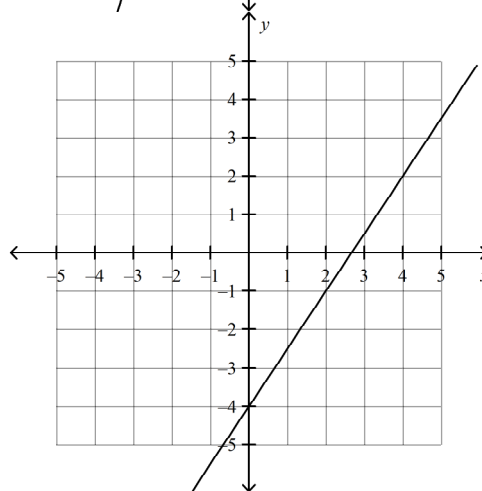
_____ 38. State the *x*-intercept and the *y*-intercept of the line.

a. 5; –2   c. 6; –2
b. 4; –1   d. 5; –3

_____ 39. Find the *x*-intercept and the *y*-intercept for the graph of the equation.
$x + 2y = 10$

a.   11; 5   c.   9; 6
b.   10; 5   d.   10; 4

Graph the equation using the x- and y-intercepts.

_____ 40. $2x + 2y = -6$

a.

c.

b.

d.

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

_____ 41. $(7, -5), (-1, 8)$

a. $-\frac{13}{8}$ c. $\frac{13}{8}$

b.   0   d. $-\frac{8}{13}$

_____ 42. $(-3, 5), (-4, 5)$

a. $-\frac{10}{7}$ c.   undefined

b.   0   d. $-\frac{7}{10}$
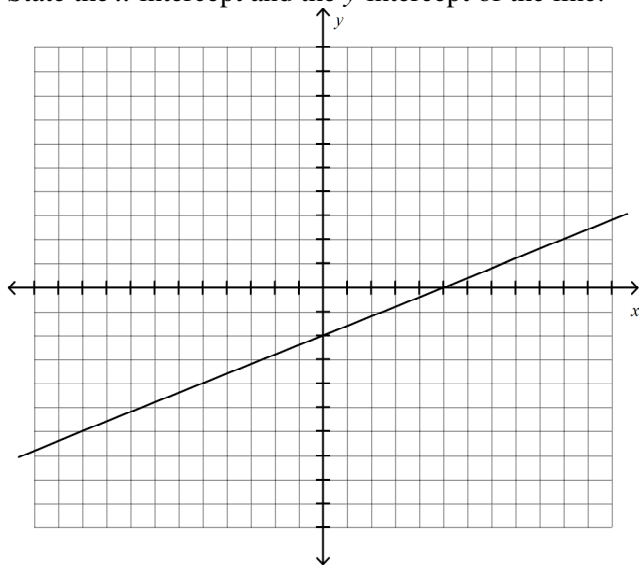
Find the slope of the line.

_____ 43.
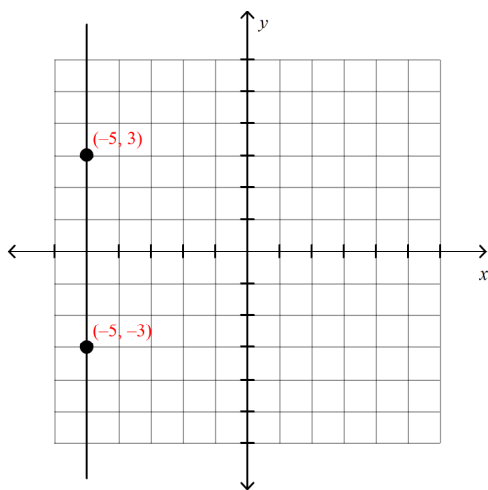
    a.   1
    b.   −1
    c.   0
    d.   undefined

_____ 44.
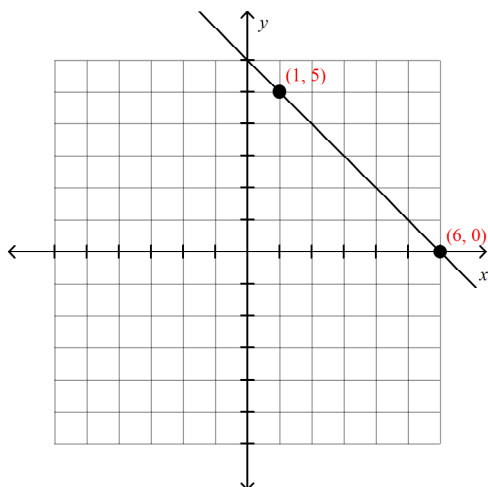
    a.   1
    b.   −1
    c. $-\dfrac{4}{5}$
    d.   2

State the slope and the y-intercept for the graph of the equation.

_____ 45. $2x - y = 4$
    a.   2; −4
    b. $\frac{1}{2}$; −5
    c.   2; −3
    d.   −4; 2

_____ 46. Graph each line with the given slope and y-intercept.
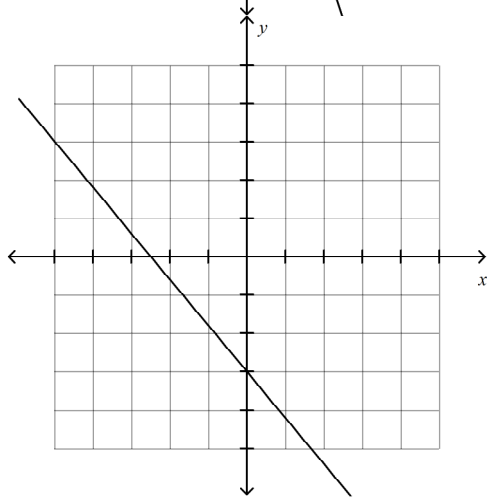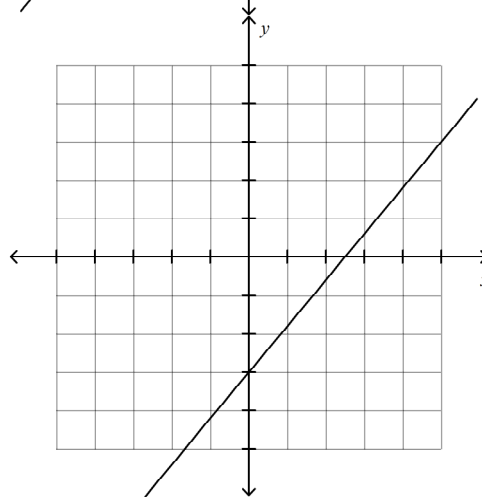
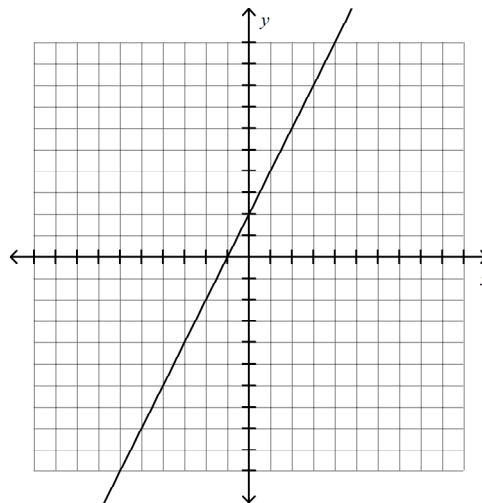slope = $\frac{6}{5}$, y-intercept = -3

a.
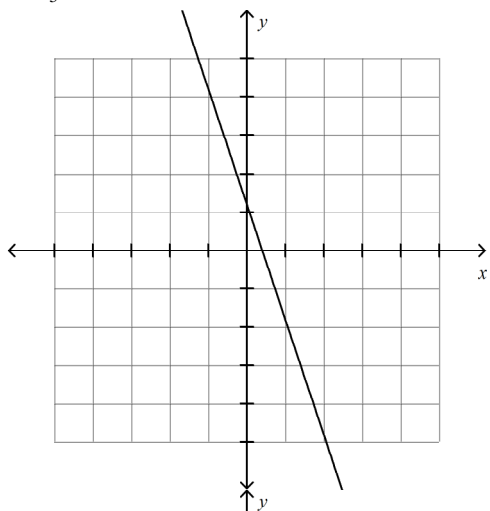
c.
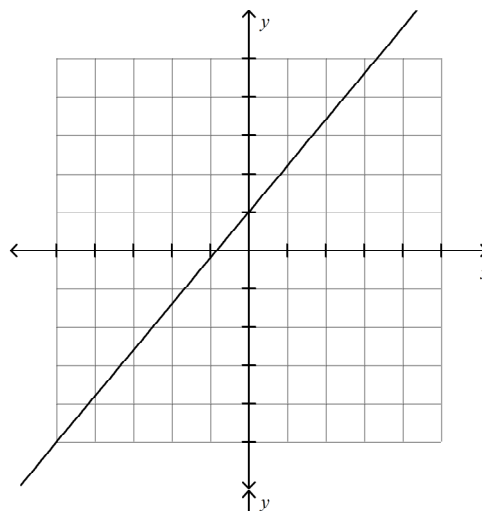
b.

d.

_____ 47. Graph the equation using the slope and y-intercept.
$2x + y = 4$

a.
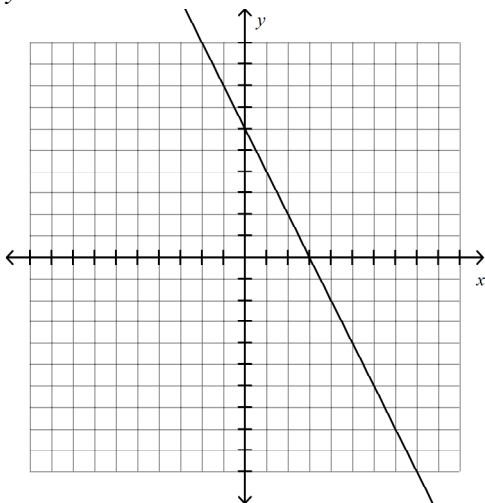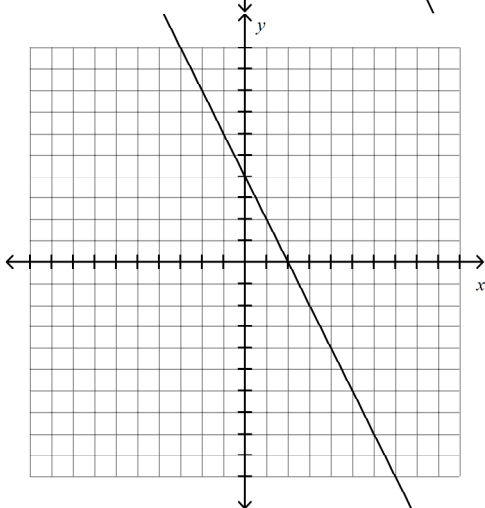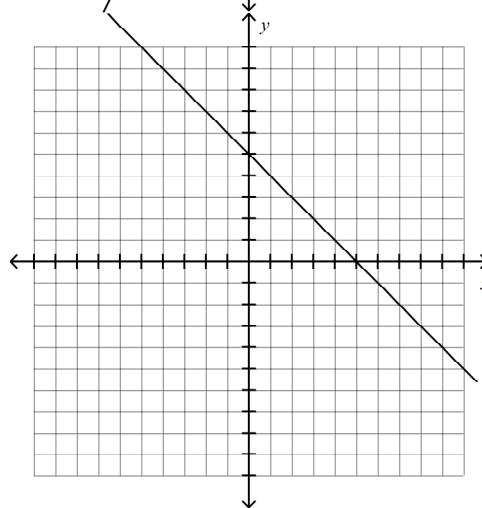
c.

b.

d.

Write an equation in slope-intercept form for the line.

_____ 48. slope = 1, y-intercept = 0

    a. $y = -x + 1$ c. $y = -x$

    b. $y = x$ d. $y = x + 1$

Write an equation in slope-intercept form for the line passing through the pair of points.

_____ 49. $\left(-2, -2\right), \left(-3, 5\right)$

    a. $y = -7x + 16$ c. $y = 7x - 16$

    b. $y = -7x - 16$ d. $y = \frac{1}{7}x + 16$

_____ 50. $\left(4, 0\right), \left(1, 3\right)$

    a. $y = x - 4$ c. $y = -x - 4$

    b. $y = x + 4$ d. $y = -x + 4$