

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Factor completely. If the polynomial is prime, state this.

1) $x^3 + 8x^2 - 20x$

- A) $x(x - 10)(x + 2)$ B) $(x^2 + 2)(x - 10)$
 C) $(x^2 + 10)(x - 2)$ D) $x(x + 10)(x - 2)$

2) $81x^2 - 108x + 36$

- A) $(9x + 6)^2$ B) $9(3x - 2)^2$
 C) Prime D) $(81x - 6)(x - 6)$

3) $64 - 48x + 9x^2$

- A) $(x - 8)^2$ B) $(3x - 8)^2$
 C) $(3x + 8)^2$ D) Prime

4) $5t^3 - 30t^2 + 45t$

- A) $t(t - 3)(5t - 15)$ B) $5t(t - 3)^2$
 C) $t(5t - 3)^2$ D) $5(t^2 - 3t)(t - 3)$

5) $\frac{1}{5}y^3 - \frac{1}{5}y^2 - \frac{6}{5}y$

- A) $\frac{1}{5}y(y + 3)(y - 2)$ B) $y(y + 3)\left\{\frac{y}{5} - \frac{2}{5}\right\}$
 C) $\frac{1}{5}y(y - 3)(y + 2)$ D) $y(y - 3)\left\{\frac{y}{5} + \frac{2}{5}\right\}$

6) $x^2 + 16xy + 64y^2$

- A) Prime B) $(x + 8y)(x - 8y)$
 C) $(x - 8y)^2$ D) $(x + 8y)^2$

7) $x^4 - 16$

- A) $(x^2 + 4)(x^2 - 4)$
 B) $(x + 2)^2(x - 2)^2$
 C) $(x^2 + 4)(x - 2)(x + 2)$
 D) $(x^2 - 4)(x - 2)(x + 2)$

8) $36x^2 - 25$

- A) $(6x + 5)(6x - 5)$
- B) $(6x + 5)^2$
- C) $(36x + 1)(x - 25)$
- D) $(6x - 5)^2$

11) $10x^2 + 23x + 12$

- A) $(2x + 1)(5x + 12)$
- B) $(2x + 3)(5x + 4)$
- C) $(2x - 3)(5x - 4)$
- D) $(10x + 1)(x + 12)$

9) $30y^5 - 72y^4 - 54y^3$

- A) $6(5y^4 + 3)(y - 3)$
- B) $6y^3(5y - 3)(y + 3)$
- C) $6y^3(5y + 3)(y - 3)$
- D) $y^3(30y + 18)(y - 3)$

12) $4x^3 + 8x^2y - 32xy^2$

- A) $4x(x - 2y)(x + 4y)$
- B) $(x - 2y)(4x^2 + 16xy)$
- C) $(4x^2 + 8xy)(x - 4y)$
- D) $4x(x + 2y)(x - 4y)$

10) $20x^2y^2 + 23xy + 6$

- A) $(4xy + 3)(5xy + 2)$
- B) $(4xy + 1)(5xy + 6)$
- C) $(4x + 3y)(5x + 2y)$
- D) $(5xy + 3)(4xy + 2)$

13) $3x^4 - 21x^3 + 30x^2$

- A) $3x^2(x - 2)(x - 5)$
- B) $3x^2(x + 2)(x - 5)$
- C) $3(x + 2)(x^3 + 5)$
- D) $x^2(3x - 2)(x + 5)$

- 14) $x^2 + 6xy - 160y^2$
A) $(x + 16y)(x - 10y)$
B) $(x - y)(x + 10y)$
C) $(x - 16y)(x + y)$
D) $(x - 16y)(x + 10y)$

- 18) $x^2 - 5x - 14$
A) $(x - 14)(x + 1)$
C) Prime
B) $(x + 2)(x - 7)$
D) $(x - 2)(x + 7)$

- 15) $14y^2 + 63y - 35$
A) $(14y - 7)(y + 5)$
C) $(2y - 1)(7y + 35)$
B) $7(2y + 1)(y - 5)$
D) $7(2y - 1)(y + 5)$

- 19) $2x^2 - 13xy - 45y^2$
A) $(2x - 9y)(x + 5y)$
B) $(2x - 5y)(x - 9y)$
C) $(2xy + 5)(xy - 9)$
D) $(2x + 5y)(x - 9y)$

- 16) $49k^2 - 169m^2$
A) $(49k + m)(k - 169m)$
B) $(7k + 13m)^2$
C) $(7k - 13m)^2$
D) $(7k + 13m)(7k - 13m)$

Solve.

20) $\frac{1}{5}x - \frac{1}{4}y = 1$

$$\frac{2}{5}x + \frac{1}{2}y = 2$$

A) $(-5, -2)$

B) $\left(5, \frac{1}{4}\right)$

C) $(5, 0)$

D) No solution

- 17) $4k^4 - 28k^3 + 49k^2$
A) $(2k^3 - 7k^2)(2k - 7)$
B) $k^2(4k + 1)(k + 49)$
C) $k^2(2k - 7)^2$
D) $k^2(2k + 7)^2$

21) $-7x - 6y = -42$

$5x - 2y = -14$

A) No solution

C) (0, 8)

B) (0, 7)

D) (-1, 8)

Solve.

22) A rectangular Persian carpet has a perimeter of 232 inches. The length of the carpet is 26 inches more than the width. What are the dimensions of the carpet?

A) 103 in., 129 in.

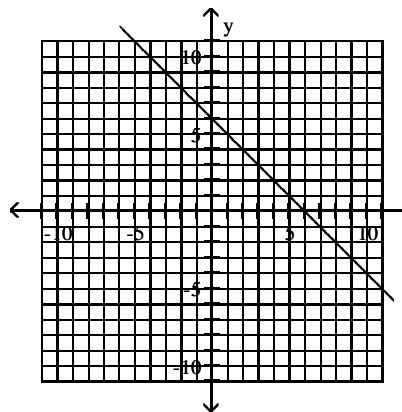
C) 45 in., 71 in.

B) 71 in., 97 in.

D) 90 in., 116 in.

Find the equation for the graph.

24)



A) $y = x - 6$

C) $y = -x - 6$

B) $y = x + 6$

D) $y = -x + 6$

Solve using the five-step problem-solving process.

23) The second angle of a triangle is 4 times as large as the first. The third angle is 50° more than the sum of the other two angles. Find the measure of the second angle.

A) $3\frac{1}{4}^\circ$

C) 52°

B) 65°

D) 13°

Perform the indicated operation. Simplify, if possible.

25) $\frac{b}{b^2 - 25} + \frac{5}{b + 5} - \frac{6}{b}$

A) $\frac{25(b - 6)}{(b + 5)(b - 5)}$

B) $\frac{6b^2 - 25b + 150}{b(b + 5)(b - 5)}$

C) $\frac{-25(b - 6)}{b(b + 5)(b - 5)}$

D) $\frac{25(b + 6)}{b(b + 5)(b - 5)}$

$$26) \frac{5x}{x^2 - 5x + 6} - \frac{20}{x^2 - 6x + 8}$$

$$A) \frac{5x - 20}{(x - 2)(x - 3)(x - 4)}$$

$$B) \frac{5(x - 6)}{(x - 3)(x - 4)}$$

$$C) \frac{5}{(x - 2)(x - 3)}$$

$$D) \frac{x - 6}{(x - 3)(x - 4)}$$

$$28) \frac{2x + 8}{x^2 + 4x + 3} - \frac{x + 5}{x^2 + 4x + 3}$$

$$A) \frac{x + 13}{x^2 + 4x + 3}$$

$$C) x + 3$$

$$B) \frac{1}{x + 1}$$

$$D) \frac{9}{x^2 + 4x + 3}$$

Solve the formula for the indicated letter.

$$29) A = P(1 + nr) \text{ for } r$$

$$A) r = \frac{A - P}{Pn}$$

$$C) r = \frac{A}{n}$$

$$B) r = \frac{Pn}{A - P}$$

$$D) r = \frac{P - A}{Pn}$$

$$27) \frac{6x}{x + 4} + \frac{2}{x - 4}$$

$$A) \frac{6x^2 - 22x + 8}{x^2 - 16}$$

$$C) \frac{6x^2 - 22x + 8}{x^2 + 8x + 16}$$

$$B) \frac{6x^2 - 22x + 8}{x^2 - 8x + 16}$$

$$D) \frac{6x + 2}{(x + 4)(x - 4)}$$

$$30) V = \frac{1}{3}Bh \text{ for } h$$

$$A) h = \frac{3V}{B}$$

$$C) h = \frac{3B}{V}$$

$$B) h = \frac{B}{3V}$$

$$D) h = \frac{V}{3B}$$

31) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$ for c

A) $c = a + b$

C) $c = \frac{ab}{a + b}$

B) $c = ab(a + b)$

D) $c = \frac{a + b}{ab}$

Simplify.

34) $\frac{64 - 3 \cdot 4}{2^3 \div 2^2 - (-2)^2}$

A) $\frac{1}{2}$

C) $\frac{26}{3}$

B) $\frac{1}{4}$

D) - 26

32) $P = 2L + 2W$ for W

A) $W = \frac{P - L}{2}$

C) $W = P - L$

B) $W = \frac{P - 2L}{2}$

D) $W = d - 2L$

35) $11^2 + 6 \cdot 7 - (12 + 5 \cdot 6)$

A) 181

C) 847

B) 61

D) 121

Find decimal notation.

33) $-\frac{17}{40}$

A) -0.425

C) $-0.4\overline{25}$

B) -0.43

D) $-0.4\overline{25}$

36) $\frac{6 + \frac{1}{3}}{4 - \frac{2}{9}}$

A) $\frac{171}{34}$

C) $\frac{171}{68}$

B) $\frac{57}{17}$

D) $\frac{57}{34}$

- 37) $3x^3 + x - 2(3x^2 - 8x)$
 A) $3x^3 - 6x^2 - 15x$
 B) $3x^3 - 6x^2 + 17x$
 C) $3x^3 - 3x^2 - 7x$
 D) $3x^3 - 6x^2 + x + 16$

$$40) \frac{\frac{x}{5y} - \frac{7}{10y^3}}{\frac{7}{10y^3} - \frac{x}{5y}}$$

A) $\frac{2xy^2 - 7}{2xy^2 + 7}$

B) $\frac{2xy^2 - 7}{7 - 2xy^2}$

C) 1

D) -1

38) $\frac{\frac{a}{a+8} - \frac{7}{a-9}}{\frac{a}{a+8} - \frac{1}{a-9}}$

A) $\frac{a^2 + 16a + 56}{a^2 + 10a + 8}$

B) $\frac{a^2 - 16a - 56}{a^2 - 10a - 8}$

C) $\frac{a^2 - 16a + 56}{a^2 - 10a + 8}$

D) $\frac{a^2 + 2a - 56}{a^2 + 8a - 8}$

List all numbers for which the rational expression undefined.

41) $\frac{x^2 - 36}{x^2 + 17x + 72}$

A) 9, -8

B) -9, -8

C) 0

D) -6, 6

39) $-78 \div -6 \cdot -\frac{1}{9}$

A) $-\frac{9}{13}$

B) -117

C) $-\frac{13}{9}$

D) $\frac{13}{9}$

Multiply.

42) $(7x + 9y)^2$

A) $7x^2 + 126xy + 81y^2$

B) $7x^2 + 81y^2$

C) $49x^2 + 126xy + 81y^2$

D) $49x^2 + 81y^2$

43) $(5y - 7)(5y^2 - y - 1)$

A) $0y^2 + 2y + 7$

B) $25y^3 - 40y^2 + 2y + 7$

C) $25y^3 - 30y^2 + 2y + 7$

D) $25y^3 + 2y + 7$

46) $(x - 3)(9x^2 + x + 8)$

A) $9x^3 - 28x^2 + 5x - 24$

B) $9x^3 - 26x^2 + 11x - 24$

C) $9x^3 + 26x^2 + 5x - 24$

D) $9x^3 - 26x^2 + 5x - 24$

44) $(-7x^4)(4x^3)(-9x^2)$

A) $-252x^9$

B) $252x^9$

C) $-252x^{24}$

D) $252x^{24}$

47) $(2x + 1)(2x - 1)$

A) $4x^2 - 1$

B) $4x^2 + 4x - 1$

C) $4x^2 - 4x - 1$

D) $2x^2 - 4x - 1$

45) $(9y^2 - 11)(9y^2 + 11)$

A) $81y^4 - 121$

B) $81y^2 + 121$

C) $9y^2 - 121$

D) $81y^4 - 198y^2 + 198$

48) $(4x^2 + 4x + 2)(x^2 + 5x + 4)$

A) $4x^4 + 24x^3 + 38x^2 + 26x + 8$

B) $4x^4 + 20x^3 + 36x^2 + 26x + 8$

C) $4x^4 + 20x^3 + 38x^2 + 26x + 8$

D) $4x^4 + 24x^3 + 36x^2 + 26x + 8$

49) $2x^3(5x^3 + 10x^2)$

A) $30x^6 + 30x^5$

B) $10x^6 + 10x^2$

C) $10x^6 + 20x^5$

D) $30x^3$

50) $\frac{5}{6}w^9 \left(7w^4 - 3w^2 + \frac{5}{4} \right)$

A) $\frac{35}{6}w^{13} + \frac{5}{2}w^{11} - \frac{25}{24}w^9$

B) $\frac{35}{6}w^4 - \frac{5}{2}w^2 + \frac{25}{24}$

C) $\frac{35}{6}w^{13} - \frac{5}{2}w^{11} + \frac{25}{24}w^9$

D) $\frac{35}{6}w^{13} + \frac{5}{6}w^{11} - \frac{25}{24}w^9$

53) $(x - 0.4)(x + 0.4)$

A) $x^2 - 0.8x + 0.16$ B) $x^2 - 0.16$

C) $x^2 + 0.16$ D) $x^2 - 0.8x - 0.16$

Solve.

54) $y - 2x = 8$
 $2y - x = 8$

A) Infinite number of solutions
 B) No solution
 C) $\left(-\frac{8}{3}, \frac{8}{3} \right)$
 D) $\left(-\frac{8}{3}, -\frac{8}{3} \right)$

51) $\left(\frac{1}{3}m - 2 \right) \left(\frac{5}{3}m - 2 \right)$

A) $\frac{5}{3}m^2 - 4m + 8$ B) $\frac{5}{3}m^2 - 4m + 4$

C) $\frac{5}{9}m^2 - 4m + 4$ D) $\frac{5}{6}m^2 - 4m + 4$

52) $(2a - 9)^2$

A) $2a^2 - 36a + 81$ B) $2a^2 + 81$

C) $4a^2 + 81$ D) $4a^2 - 36a + 81$

55) $-7x + 14 = -5y$
 $3x + 3y = -30$

A) $(-4, -6)$
 B) $(-3, -7)$
 C) No solution
 D) Infinite number of solutions

- 56) $r + 3s = 5$
 $7r + 4s = 35$
 A) (5, 0)
 B) No solution
 C) (-5, -1)
 D) Infinite number of solutions

- 59) $\frac{m^2 - 25}{m^2 + 10m + 25}$
 A) $\frac{1}{m + 5}$
 B) $\frac{m + 5}{m - 5}$
 C) $\frac{m - 5}{m + 5}$
 D) 1

Simplify, if possible.

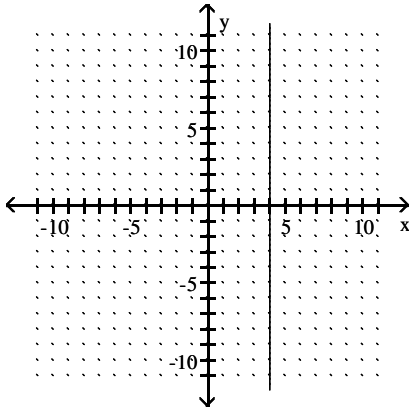
- 57) $\frac{b - a}{7a - 7b}$
 A) $\frac{1}{7}$
 B) $\frac{b - a}{7a - 7b}$
 C) -7
 D) $-\frac{1}{7}$

- 60) $\frac{x^2 - 4}{(x - 2)^2}$
 A) $\frac{x + 2}{x - 2}$
 B) $\frac{x^2 - 4}{(x - 2)^2}$
 C) $x + 2$
 D) $\frac{x - 2}{x + 2}$

- 58) $\frac{t^2 + 12t + 36}{t^2 - 12t + 36} \div \frac{(t + 6)^7}{(t - 6)^7} \div \frac{2t - 12}{t^2 - 36}$
 A) $\frac{(t - 6)^5}{2(t + 6)^4}$
 B) $\frac{2(t - 6)^5}{(t + 6)^6}$
 C) $\frac{2(t + 6)^6}{(t - 6)^9}$
 D) $\frac{(t + 6)^{10}}{2(t - 6)^9}$

Write an equation for the graph.

61)



- A) $y = x + 8$ B) $y = x + 4$
 C) $y = 4$ D) $x = 4$

Solve using the addition and multiplication principles.

63) $0.6x + 10 + x > 2x + 5 - 0.5x$

- A) $\{x \mid x \geq 5\}$ B) $\{x \mid x < -50\}$
 C) $\{x \mid x > -50\}$ D) $\{x \mid x < 5\}$

Find an equation of the line meeting the specified conditions. Write your final answer in slope-intercept form.

62) Containing the point $(0, \frac{3}{4})$ and perpendicular to $9x + y = 6$

- A) $y = 9x - \frac{3}{4}$ B) $y = -9x + \frac{3}{4}$
 C) $y = 9x + \frac{3}{4}$ D) $y = \frac{1}{9}x + \frac{3}{4}$

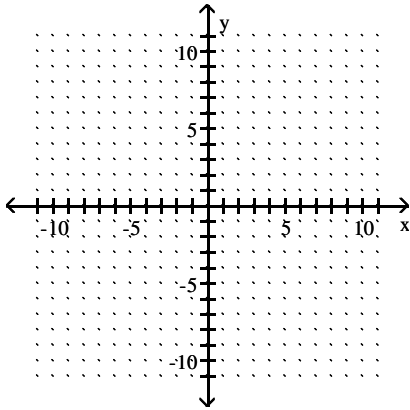
Multiply and, if possible, simplify.

64) $\frac{x - 7}{(x + 4)^2} \cdot \frac{x^2 - 3x - 28}{(x - 7)^2}$

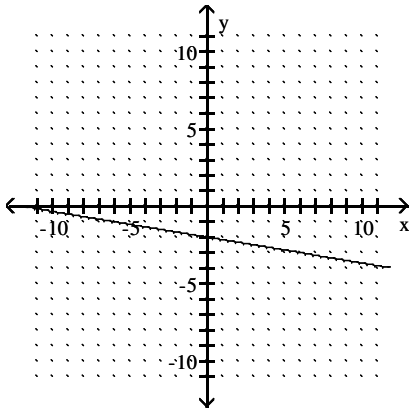
- A) $\frac{1}{x + 4}$ B) $x + 4$
 C) $\frac{x - 7}{x + 4}$ D) $\frac{1}{x - 7}$

Graph the linear equation.

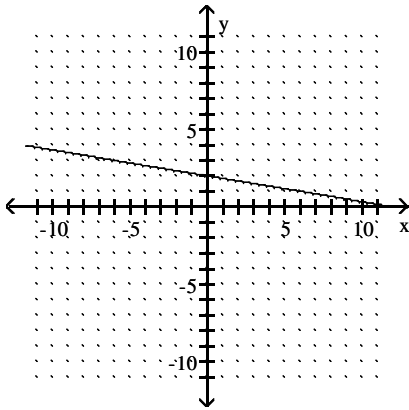
65) $y = \frac{1}{6}x + 2$



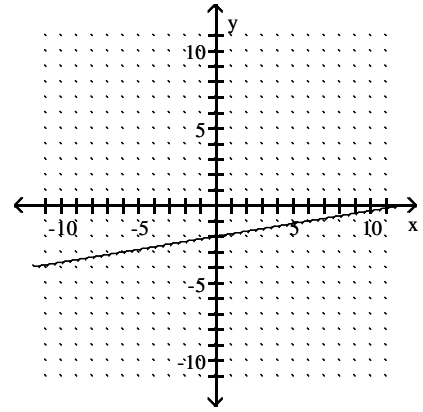
A)



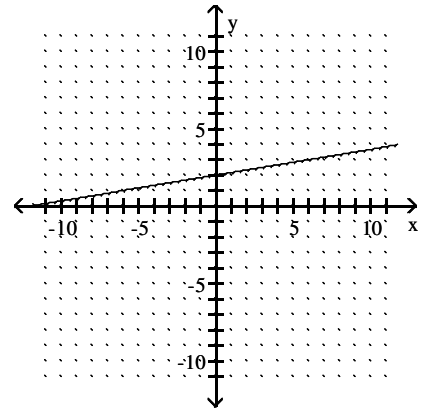
B)



C)



D)



Find an equation of the line meeting the specified conditions. Write your final answer in slope-intercept form.

66) Containing the point $(0, \frac{1}{8})$ and parallel to

$6x + 4y = 5$

A) $y = -\frac{3}{2}x + \frac{1}{8}$

B) $y = 6x + \frac{1}{8}$

C) $y = \frac{2}{3}x + \frac{1}{8}$

D) $y = \frac{3}{2}x + \frac{1}{8}$

Perform the indicated operation and, if possible, simplify.

$$67) \frac{22}{23} - \frac{10}{21}$$

A) $\frac{232}{23}$

B) $\frac{232}{483}$

C) $\frac{4}{161}$

D) $\frac{483}{232}$

Solve using the addition and multiplication principles.

$$70) \frac{2}{3}(2x - 1) < -2$$

A) $\{x \mid x \leq -1\}$

B) $\{x \mid x \geq 1\}$

C) $\{x \mid x < -1\}$

D) $\{x \mid x < 1\}$

Subtract.

$$68) (-9x^5 + 4x^7 - 2 - 6x^6) - (-4 + 4x^6 + 8x^7 - 5x^5)$$

A) $-4x^7 - 2x^6 - 14x^5 - 6$

B) $12x^7 - 2x^6 - 14x^5 - 6$

C) $12x^7 - 2x^6 - 14x^5 + 2$

D) $-4x^7 - 10x^6 - 4x^5 + 2$

$$71) \frac{5}{6}\left(5x - \frac{2}{15}\right) - \frac{2}{5} < \frac{3}{5}$$

A) $\left\{x \mid x \geq -\frac{4}{15}\right\}$

B) $\left\{x \mid x < -\frac{4}{15}\right\}$

C) $\left\{x \mid x \leq \frac{4}{15}\right\}$

D) $\left\{x \mid x < \frac{4}{15}\right\}$

$$69) 0.078 - 1$$

A) 1.078

B) 0.922

C) -1.078

D) -0.922

$$72) -6 + 11x - 2 \geq 10x + 2$$

A) $\{x \mid x < 11\}$

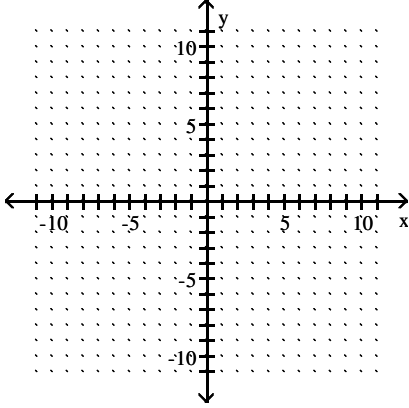
B) $\{x \mid x > 11\}$

C) $\{x \mid x \geq 10\}$

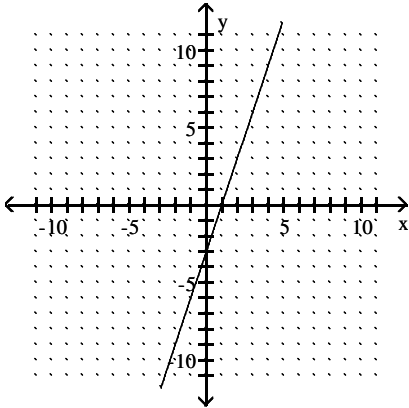
D) $\{x \mid x \leq 10\}$

Graph the equation.

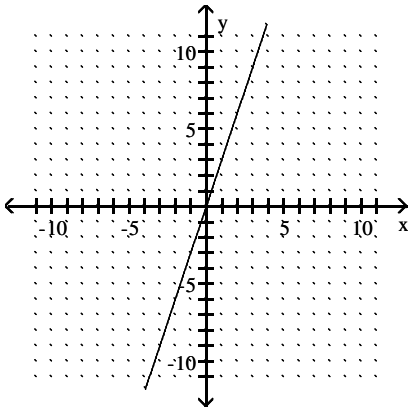
73) $y = 3x + 3$



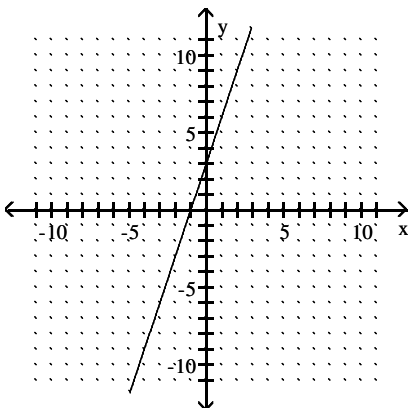
A)



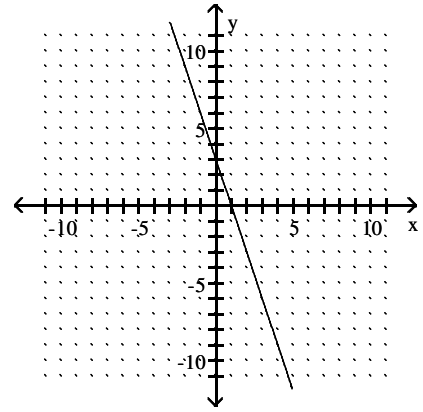
B)



C)



D)



Multiply and, if possible, simplify.

74) $\frac{x^2 - 9x + 18}{4x^3 - 5x^2} \cdot \frac{16x^3 - 25x}{2x - 12}$

A) $\frac{(x - 3)(4x + 5)}{2x}$

B) $\frac{(x + 3)(4x + 5)}{2}$

C) $\frac{(x - 3)(4x - 5)}{2x}$

D) $\frac{(x - 3)(4x + 5)}{2x^2}$

75) $\frac{6x + 12}{x + 3} \cdot \frac{3x^2 + 18x + 27}{x^2 - 4}$

A) $\frac{18(x + 3)}{x + 2}$

B) $\frac{6(x + 3)}{x - 2}$

C) $\frac{18(x + 2)(x + 3)}{x^2 - 4}$

D) $\frac{18(x + 3)}{x - 2}$

Simplify. Assume that no denominator is zero and that 0 is not considered.

76) $(6x^3)(2x^5)$

- A) $8x^8$
- C) $8x^{15}$

- B) $12x^{15}$
- D) $12x^8$

77) $\frac{30m^3p^2}{5m^9p}$

- A) $6m^6p^2$
- C) $\frac{6p}{m^6}$

- B) $6mp$
- D) $\frac{6m^6}{p}$

78) $\left(\frac{4x^5y^5}{9z^{10}}\right)^2$

- A) $\frac{16x^{10}y^{10}}{9z^{12}}$
- C) $\frac{16x^{10}y^7}{81z^{20}}$

- B) $\frac{16x^{10}y^{10}}{81z^{20}}$
- D) $\frac{16x^7y^7}{81z^{12}}$

Factor out the largest common factor.

79) $6x^{12} - 12x^9 + 18x^6 - 24x^3$

- A) $x^3(x^9 - 2x^6 + 3x^3 - 4)$
- B) $6(x^9 - 2x^6 + 3x^3 - 4)$
- C) $6x^3(x^9 - 2x^6 + 3x^3 - 4)$
- D) $6x^3(x^4 - 2x^3 + 3x^2 - 4)$

80) $16m^8 - 32m^4 - 40m^2$

- A) $m^2(16m^6 - 32m^2 - 40)$
- B) $8(2m^8 - 4m^4 - 5m^2)$
- C) No common factor
- D) $8m^2(2m^6 - 4m^2 - 5)$

81) $12x^9y^7 + 16x^4y^5 - 24x^2y^2$

- A) $4(3x^9y^7 + 4x^4y^5 - 6x^2y^2)$
- B) No common factor
- C) $4x^2(3x^7y^7 + 4x^2y^5 - 6y^2)$
- D) $4x^2y^2(3x^7y^5 + 4x^2y^3 - 6)$

Divide and, if possible, simplify.

$$82) \frac{12x^6}{20y^{11}} \div \frac{30x^4}{20y^5}$$

A) $\frac{2x^2}{5y^6}$

B) $\frac{9x^{10}}{10y^{16}}$

C) $\frac{5y^2}{2x^6}$

D) $\frac{9x^2}{10y^6}$

$$83) \frac{x^2 - 14x + 45}{x^2 - 7x + 10} \div (x^2 - 11x + 18)$$

A) $\frac{1}{(x+2)^2}$

B) $\frac{1}{(x-2)^2}$

C) $(x+2)^2$

D) $(x-9)^2$

85) A contractor finds that it takes Julie 9 hours to construct a wall of a certain size. It takes Leann 8 hours to construct the same wall. How long would it take if they worked together?

A) 1 hr

B) 17 hr

C) $\frac{17}{72}$ hr

D) $4\frac{4}{17}$ hr

Solve. If no solution exists, state this.

$$86) \frac{x}{x+4} - \frac{4}{x-4} = \frac{x^2+16}{x^2-16}$$

A) -4

B) -4, 4

C) No solution

D) 4

Solve.

84) A shopkeeper ordered a total of 56 lb of cashews and peanuts. If he ordered 24 less pounds of cashews than peanuts, then how many pounds of peanuts did he order?

A) 28 lb

B) 40 lb

C) 16 lb

D) 32 lb

$$87) \frac{1}{y+4} - \frac{4}{y-4} = \frac{4}{y^2-16}$$

- A) 24 B) 8 C) 16 D) -8

Determine whether the pair of equations represents perpendicular lines.

$$89) y + 13 = -4x$$

$$5y = 30x - 1$$

- A) Yes B) No

Evaluate the polynomial.

$$90) 2x^3 - 6x^2 - x + 14 \text{ for } x = -2$$

- A) -24 B) -34
C) 12 D) -36

$$88) \frac{3}{x} = 7 + \frac{2}{x}$$

- A) $\frac{1}{7}$ B) $\frac{7}{5}$ C) 7 D) $\frac{1}{5}$

Find an equation in point-slope form of the line having the specified slope and containing the point indicated.

$$91) m = \frac{-1}{2}; (-6, -3)$$

$$A) y + 3 = \frac{-1}{2}(x - 6)$$

$$B) y - 3 = \frac{-1}{2}(x + 6)$$

$$C) y + 3 = \frac{-1}{2}(x + 6)$$

$$D) y - 3 = \frac{-1}{2}(x - 6)$$

Solve the equation.

$$92) \frac{17}{16}x + \frac{1}{16}x = 3x + \frac{1}{8} + \frac{15}{16}x$$

A) $-\frac{2}{45}$

B) $-\frac{1}{45}$

C) $\frac{2}{51}$

D) $\frac{1}{45}$

$$95) -9b + 9 + 7b = -3b + 14$$

A) -14

B) -9

C) 5

D) 14

$$93) -4y - 2 = -4 - 10y - 7y$$

A) $\frac{13}{2}$

B) $-\frac{13}{2}$

C) $-\frac{2}{13}$

D) $\frac{14}{13}$

$$96) \frac{a}{3} - \frac{1}{3} = -3$$

A) -8

B) 10

C) 8

D) -10

$$94) -10q + 1.3 = -104.3 - 1.2q$$

A) -114

B) 10.7

C) 10.6

D) 12

Find an equation of the line containing the given pair of points. Write your final answer in slope-intercept form.

$$97) (-5, 1) \text{ and } (-2, -6)$$

A) $y = \frac{7}{3}x - \frac{32}{3}$

B) $y = 2x - \frac{32}{3}$

C) $y = -\frac{7}{3}x - \frac{32}{3}$

D) $y = -2x - \frac{32}{3}$

Find the slope of the line containing the given pair of points. If the slope is undefined, state so.

98) $(8, -5)$ and $(-1, -7)$

A) $\frac{13}{6}$

B) $\frac{6}{13}$

C) $\frac{9}{2}$

D) $\frac{2}{9}$

Factor completely.

99) $3x^3 + 6x^2 + 4x + 8$

A) $(x + 2)(3x^2 + 4)$

B) $(x + 4)(3x^2 + 2)$

C) $(x - 2)(3x^2 - 4)$

D) $(x - 4)(3x^2 - 2)$

100) $x^9 + x^3 + x^6 + 1$

A) $(x^9 + 1)(x^3 + 1)$

B) $(x^2 + 1)(x^4 - x^2 + 1)(x + 1)(x^2 - x + 1)$

C) $(x^6 + 1)(x^3 + x^6)$

D) $(x^7 + 1)(x^2 + 1)$

Multiply. Leave the answer in factored form.

101) $\frac{y - 4}{y^2 + 5} \cdot \frac{y + 1}{y^2 - 2}$

A) $\frac{(y - 4)(y^2 - 2)}{(y^2 + 5)(y + 1)}$

B) $\frac{(y - 4)(y + 1)}{(y^2 + 5)(y^2 - 2)}$

C) $\frac{(y - 4)(y + 1)}{(y^2 + 5y^2)(-2)}$

D) $\frac{(y - 4y)(1)}{(y^2 + 5)(y^2 - 2)}$

Divide.

102) $(x^2 + 9x + 10) \div (x + 2)$

A) $x + 7 + \frac{4}{x + 2}$

B) $x + 7 - \frac{4}{x + 2}$

C) $\frac{x + 7}{x + 2}$

D) $x + 8$

103) $(6x^4 + 4x^2 + 2x - 17) \div (2x^2 + 4)$

A) $3x^2 - 4 + \frac{2x + 1}{2x^2 + 4}$

B) $3x^2 - 4 + \frac{2x - 1}{2x^2 + 4}$

C) $3x^2 + 4 + \frac{2x - 1}{2x^2 + 4}$

D) $3x^2 - 4 + \frac{x - 1}{2x^2 + 4}$

105) The product of two consecutive integers is 89 more than their sum. Find the integers.

A) 10 and 11

B) 9, 10 or -9, -8

C) 10, 11 or -9, -8

D) -9 and -8

Solve the problem.

104) A loaded moving truck is traveling 15 mph faster than a freight train. In the time it takes the train to travel 60 miles, the truck travels 90 miles. Find the speed of the truck.

A) 9 mph

B) 15 mph

C) 90 mph

D) 45 mph

106) The height of a triangle is 3 cm more than the length of the base. If the area of the triangle is 152 cm^2 , find the height and length of the base.

A) height: 20 cm; base: 15 cm

B) height: 16 cm; base: 13 cm

C) height: 19 cm; base: 16 cm

D) height: 18 cm; base: 15 cm

107) A 30-ft ladder is leaning against a building. If the bottom of the ladder is 18 ft from the base of the building, how high does the ladder reach?

- A) 24 ft B) 6 ft
C) 26 ft D) 22 ft

Solve by factoring and using the principle of zero products.

109) $2k^2 = 30k - 100$

- A) -10, 5 B) -10, -5
C) 10, 20 D) 5, 10

110) $7x^2 = 4x$

- A) $-\frac{4}{7}, \frac{4}{7}$ B) $\frac{4}{7}, 0$
C) $\frac{4}{7}, \frac{7}{4}$ D) $\frac{7}{4}, 0$

108) Two angles are complementary. Twice one angle plus the other is 159° . Find the measure of each angle.

- A) $74^\circ, 16^\circ$ B) $69^\circ, 21^\circ$
C) $53^\circ, 53^\circ$ D) $69^\circ, 111^\circ$

111) $x^2 - x = 56$

- A) 7, 8 B) -7, -8
C) 1, 56 D) -7, 8

112) $(x + 2)(x - 10) = -35$

A) 10, -37

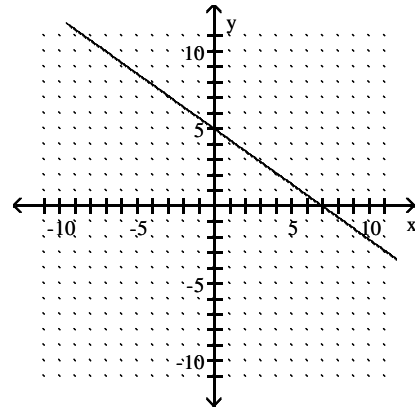
B) -25, -2

C) 5, 3

D) -2, 10

Write the equation of the line on the graph in slope-intercept form.

114)



A) $y = -\frac{5}{7}x + 5$

B) $y = -7x + 5$

C) $y = 7x + 5$

D) $y = -\frac{7}{5}x + 7$

Evaluate.

113) $-11 \div m^2 - 3(m - 4)$, for $m = 7$

A) $-\frac{452}{49}$

B) $-\frac{11}{40}$

C) $\frac{11}{82}$

D) $-\frac{11}{74}$

Find the slope and the y-intercept of the line.

115) $-4x + 5y = -5$

A) $\frac{4}{5}; (0, -1)$

B) $-1\frac{1}{4}; (0, -1)$

C) $1\frac{1}{4}; (0, 1)$

D) $-\frac{4}{5}; (0, 1)$

Factor completely.

- 116) $3x^2(5x + 4) + 2(5x + 4)$
A) $(3x^2 + 4)(5x + 2)$
B) $(15x^2 + 2)(x + 4)$
C) $(5x + 4)(3x^2 + 2)$
D) $(5x - 4)(3x^2 - 2)$

Add.

- 117) $(-3 + 3x^6 + 8x^8 - 4x^7) + (6x^7 + 8x^6 + 5 + 9x^8)$
A) $17x^{16} + 2x^{14} + 11x^{12} + 2$
B) $17x^8 + 2x^7 + 11x^6 + 2$
C) $30x^{42} + 2$
D) $3x^8 + 3x^7 + 13x^6 + 5$

Choose the most appropriate translation of the question.

- 118) 84 is 57% of what number?
A) $p \cdot 84 = 57$ B) $p = 0.84p$
C) $84 = 0.57p$ D) $p = 0.57 \cdot 84$

Translate the problem to an equation. Do not solve.

- 119) 8 minus twice a number equals 2 more than the number.
A) $8 - 2 = 2 + x$
B) $8 - 2x = 2 + 2x$
C) $8 - 2x = 2 + x$

Factor by grouping.

- 120) $6x^2 - 15x + 14x - 35$
A) $(x - 5)(x - 7)$ B) $(2x + 5)(3x - 7)$
C) $6(x - 5)(x + 7)$ D) $(2x - 5)(3x + 7)$

- 121) $3x^2 + 2x + 12x + 8$
A) $(3x + 4)(x + 2)$ B) $(3x + 2)(x + 4)$
C) $(3x - 2)(x - 4)$ D) $(3x - 4)(x - 2)$

Perform the indicated operation.

122) $(36x^7 - 63x^5 + 45x^3) \div (-9x^3)$

- A) $-4x^7 + 7x^5 - 5x^3$
- B) $-4x^4 + 7x^2 - 5$
- C) $-4x^4 - 63x^5 + 45x^3$
- D) $36x^4 - 63x^2 + 45$

Determine whether the pair of equations represents parallel lines.

125) $12x + 4y = 16$

$9x + 3y = 14$

A) No

B) Yes

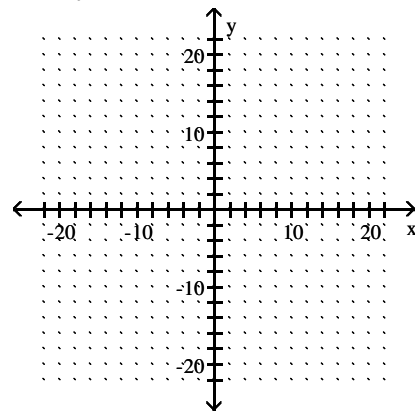
Find the intercepts for the equation.

123) $-2x - 4y = 4$

- A) $(-2, 2), (-1, 4)$
- B) $(-1, 0), (2, 0)$
- C) $(0, -1), (0, 2)$
- D) $(-2, 0), (0, -1)$

Find the x- and y-intercepts for the equation. Then graph the equation.

126) $-x + 4y = 16$

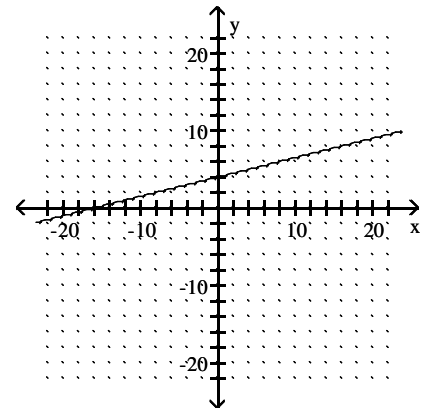


A) $(0, -4), (-16, 0)$

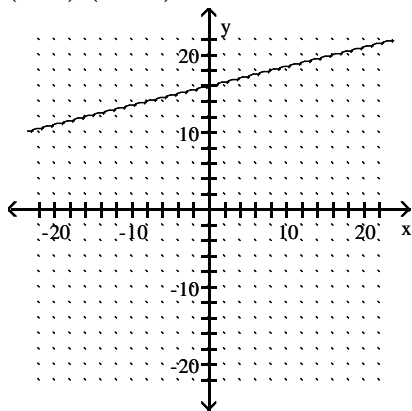
Find an equation of the line having the specified slope and containing the indicated point. Write your answer in slope-intercept form.

124) $m = -9; (-7, 6)$

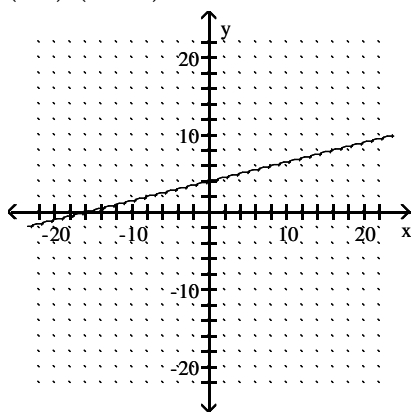
- A) $y = 9x - 59$
- B) $y = -9x - 57$
- C) $y = -9x - 65$
- D) $y = -9x - 58$



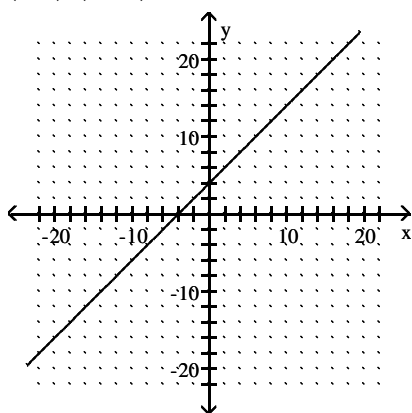
B) (0, 16), (-16, 0)



C) (0, 4), (-16, 0)



D) (0, 4), (-4, 0)



Evaluate as requested.

127) Evaluate the polynomial $x^2yz + x + y$ for $x = 1$, $y = -4$, and $z = 1$.

- A) -7 B) -4 C) 4 D) 7

Find the slope-intercept equation for the line with the indicated slope and y-intercept.

128) Slope $-\frac{4}{3}$; y-intercept (0, 8)

- A) $y = -\frac{4}{3}x + 8$ B) $y = \frac{4}{3}x - 8$
 C) $y = \frac{4}{3}x + 8$ D) $y = -\frac{4}{3}x - 8$

Add or subtract, as indicated.

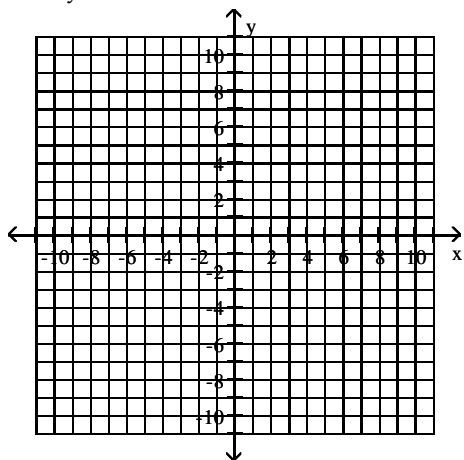
129) $(2x^2y + 3xy) - (5x^2y + 2xy^2) - (5xy + 5xy^2)$

- A) $-8x^2y - 2xy^2 - 2xy$
 B) $-3x^2y + 7xy^2 + 8xy$
 C) $-3x^2y + 7xy^2 - 2xy$
 D) $-3x^2y - 7xy^2 - 2xy$

Solve the system of equations by graphing. If there is no solution or an infinite number of solutions, state this.

130) $2x + y = 10$

$x + 2y = 14$



- A) (2, 6)
- B) Infinite number of solutions
- C) (-2, 6)
- D) No solution

Answer Key

Testname: M115SAMPLEFINAL

- 1) D
- 2) B
- 3) B
- 4) B
- 5) C
- 6) D
- 7) C
- 8) A
- 9) C
- 10) A
- 11) B
- 12) A
- 13) A
- 14) A
- 15) D
- 16) D
- 17) C
- 18) B
- 19) D
- 20) C
- 21) B
- 22) C
- 23) C
- 24) D
- 25) C
- 26) B
- 27) A
- 28) B
- 29) A
- 30) A
- 31) C
- 32) B
- 33) A
- 34) D
- 35) D
- 36) D
- 37) B
- 38) B
- 39) C
- 40) D
- 41) B
- 42) C
- 43) B
- 44) B
- 45) A
- 46) D
- 47) A
- 48) A
- 49) C
- 50) C

Answer Key

Testname: M115SAMPLEFINAL

- 51) C
- 52) D
- 53) B
- 54) C
- 55) B
- 56) A
- 57) D
- 58) A
- 59) C
- 60) A
- 61) D
- 62) D
- 63) C
- 64) A
- 65) D
- 66) A
- 67) B
- 68) D
- 69) D
- 70) C
- 71) D
- 72) C
- 73) C
- 74) A
- 75) D
- 76) D
- 77) C
- 78) B
- 79) C
- 80) D
- 81) D
- 82) A
- 83) B
- 84) B
- 85) D
- 86) C
- 87) D
- 88) A
- 89) B
- 90) A
- 91) C
- 92) A
- 93) C
- 94) D
- 95) C
- 96) A
- 97) C
- 98) D
- 99) A
- 100) B

Answer Key

Testname: M115SAMPLEFINAL

- 101) B
- 102) B
- 103) B
- 104) D
- 105) C
- 106) C
- 107) A
- 108) B
- 109) D
- 110) B
- 111) D
- 112) C
- 113) A
- 114) A
- 115) A
- 116) C
- 117) B
- 118) C
- 119) C
- 120) D
- 121) B
- 122) B
- 123) D
- 124) B
- 125) B
- 126) C
- 127) A
- 128) A
- 129) D
- 130) A