

Intermediate Algebra -- Lial/Hornsby/McGinnis (10th Edition)
Practice for the Final Exam

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the equation.

1) $4(5x + 5) - 6(x - 5) = 3x + 100 + x$ 1) _____

2) $0.5x - 0.4(40 + x) = -12$ 2) _____

3) $\frac{x+2}{54} + \frac{x-4}{27} = \frac{x-2}{18}$ 3) _____

Solve the equation. Then tell whether the equation is a conditional equation, an identity, or a contradiction.

4) $4x - (1 - x) + 5x + 1 = 10x + 4$ 4) _____

Solve.

5) $-6y^2 + wy - x = 0$ for w 5) _____

6) $5s + 4p = tp - 4$ for p 6) _____

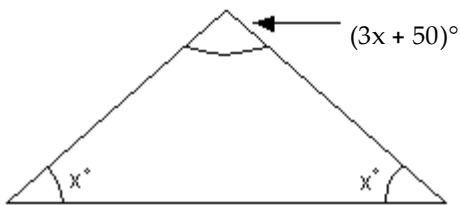
Solve the problem.

7) A plane climbs from an altitude of 6000 ft to a cruising altitude of 33,000 ft. The plane ascends at a rate of 3375 ft/min. How long will it take to reach cruising altitude? 7) _____

8) Walt made an extra \$5000 last year from a part-time job. He invested part of the money at 9% and the rest at 8%. He made a total of \$410 in interest. How much did he invest at each rate? 8) _____

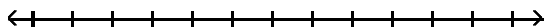
9) Jill is 9 kilometers away from Joe. Both begin to walk toward each other at the same time. Jill walks at 2.5 km/hr. They meet in 2 hours. How fast is Joe walking? 9) _____

10) Find the measure of each angle. 10) _____



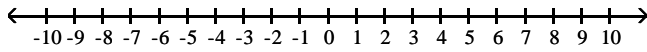
Solve the inequality. Give the solution set in both interval and graph forms.

11) $2 - 5(x + 9) \leq -3 - 9(x + 5) + 9x$ 11) _____



$$12) -8 \leq \frac{4}{3}x - 4 \leq 0$$

12) _____



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

Solve the problem.

13) Which one of the following inequalities is equivalent to $y \geq -7$?

13) _____

A) $-5y \leq -35$

B) $-5y \geq -35$

C) $-5y \leq 35$

D) $-5y \geq 35$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

14) Raymond plans on playing 5 rounds of golf while on vacation. He wants his average to be 90 or less. His scores for the first 4 rounds were 85, 91, 89, and 89. What does he need to score on the last round to meet his goal?

14) _____

Find the indicated intersection or union.

15) $\{4, 8, 11, 15, 20\} \cap \{8, 15, 20, 30\}$

15) _____

16) $\{4, 7, 14, 16\} \cup \{7, 16, 23, 27\}$

16) _____

Solve the compound inequality.

17) $3 \leq 5x - 7$ and $3x + 1 < 19$

17) _____

18) $-4x \leq -12$ or $6x - 4 < 2x$

18) _____

Solve the absolute value inequality.

19) $|7x - 8| < 3$

19) _____

20) $|9 - 4x| \geq 5$

20) _____

21) $|y - 1| \leq -9$

21) _____

Solve the absolute value equation.

22) $|2k + 2| + 4 = 13$

22) _____

23) $|2s - 6| = |-2 - s|$

23) _____

Complete the table of ordered pairs for the equation.

24) $5x - 6y = -30$

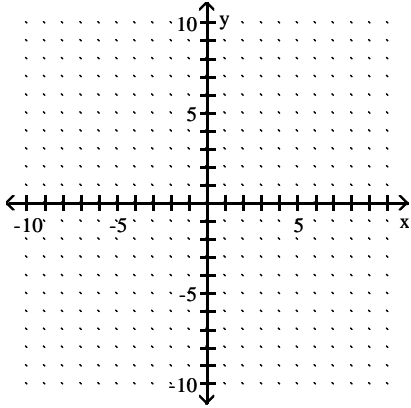
24) _____

x	y
-6	
-4	
	3

Find the x- and y-intercepts, and graph the equation.

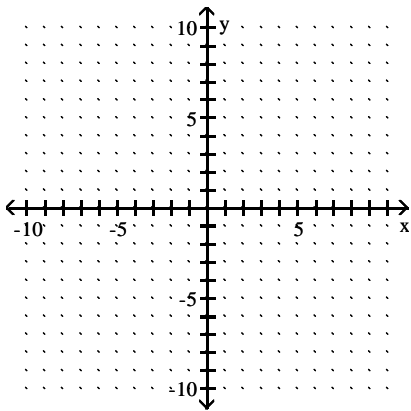
25) $2x - 6y = -12$

25) _____



26) $y = -4$

26) _____



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

27) $(1, -2)$ and $(5, -9)$

27) _____

Answer the question.

28) How is the graph of a line with undefined slope situated in a rectangular coordinate system?

28) _____

Decide whether the pair of lines is parallel, perpendicular, or neither.

29) $32x + 12y = 3$ and $8y = 3x - 6$

29) _____

30) $4x + y = -1$ and $3y = 12x - 9$

30) _____

Solve the problem.

31) In 1980, there were 131,000 farms in a state. As of 2005, there were 66,000. Find the average rate of change in the number of farms per year.

31) _____

Find an equation of the line, and write it in (a) slope -intercept form if possible and (b) standard form.

32) Through $(-8, 7)$; $m = -8$

32) _____

33) Through $(-2, 1)$; horizontal

33) _____

34) Through $(-3, -7)$ and perpendicular to $y = \frac{1}{3}x + 15$

34) _____

35) Through $(7, -4)$ and $(-4, 1)$

35) _____

36) Through $(6, -2)$; vertical

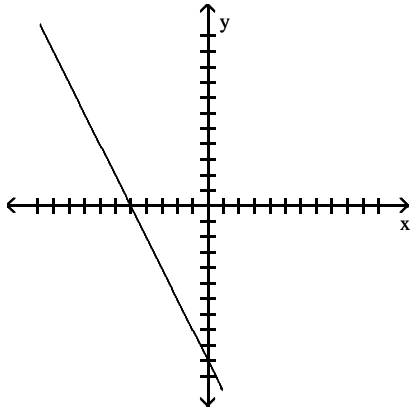
36) _____

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

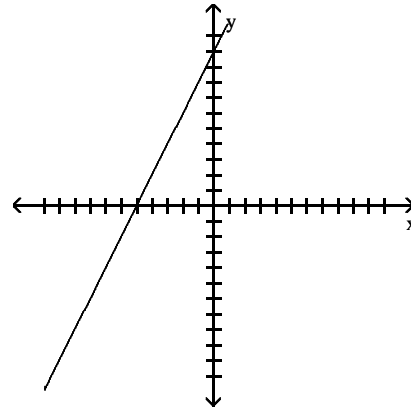
Provide an appropriate response.

37) Which one of the following has positive slope and negative y-coordinate for its y-intercept? 37) _____

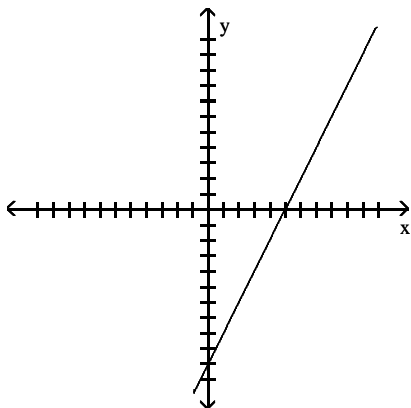
A)



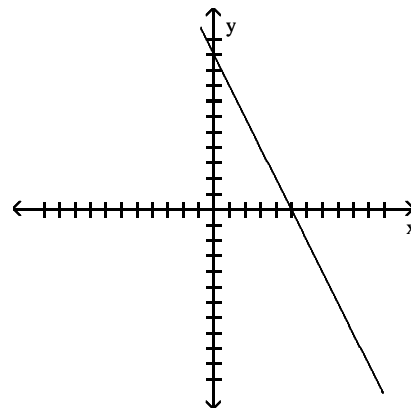
B)



C)



D)

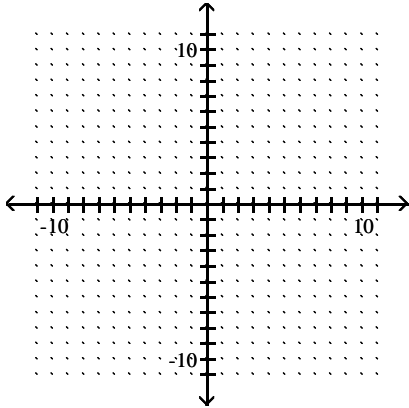


SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Graph the inequality or compound inequality.

38) $4x + 7y > -5$

38) _____



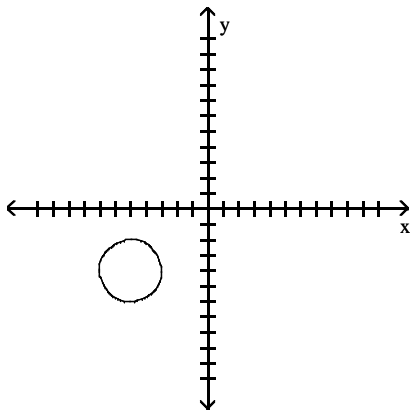
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

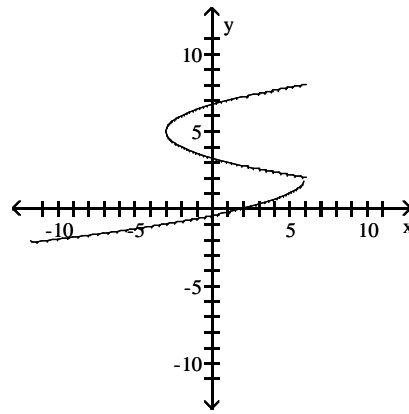
39) Which one of the following is the graph of a function?

39) _____

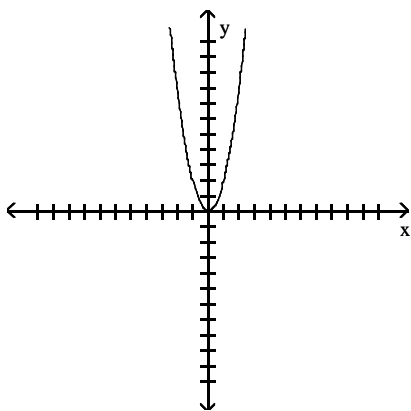
A)



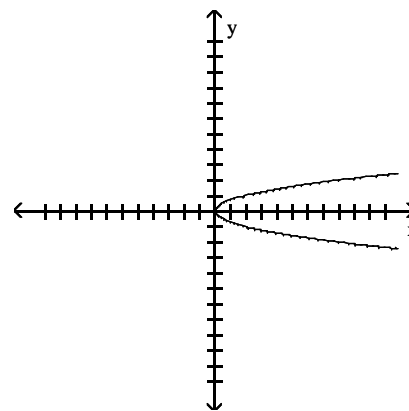
B)



C)



D)



40) Which one of the following does not define y as a function of x ?

40) _____

A)

x	y
-2	-9
1	5
-2	5
4	6

B) $y = 4x - 2$

C) $\{(1, 5), (4, 6), (9, 3)\}$

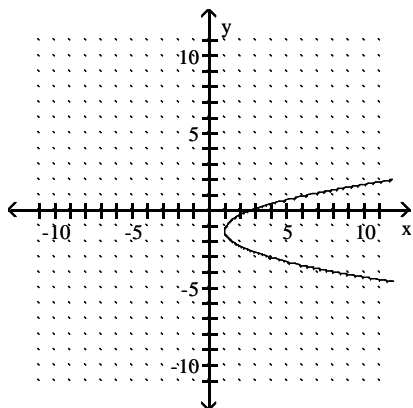
D) $y = \sqrt{x + 4}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Give the domain and range of the relation shown in the following.

41)

41) _____



42) $\{(3, 0), (-5, 1), (6, 9)\}$

42) _____

Solve the problem.

43) Find $f(2)$ when $f(x) = -x^2 + 5x + 3$.

43) _____

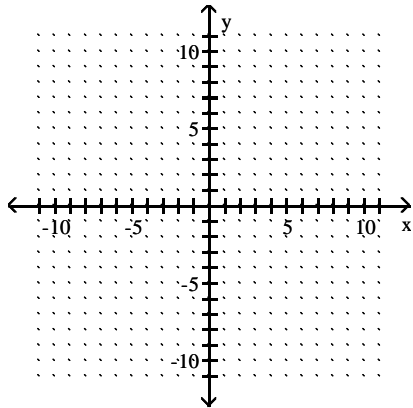
44) Find $f(a)$ when $f(x) = -x^2 - 3x - 2$.

44) _____

Graph the linear function. What is its domain and range?

45) $f(x) = \frac{4}{3}x - 3$

45) _____



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

Solve the problem.

- 46) A company manufactures three products. The graph shows the production from 1986 to 1996. Which of the companies experience production growth over the period shown in the graph?

46) _____



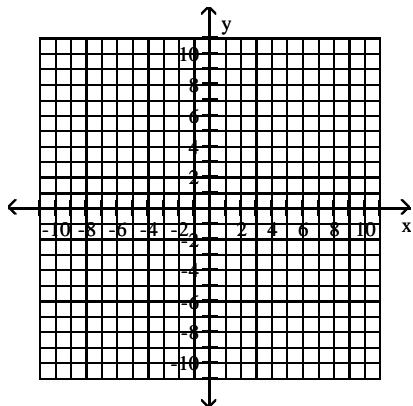
- A) Company B and Company C
 B) Company A and Company B
 C) Company A
 D) Company A and Company C

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use a graph to solve the system.

47) $x - y = 2$
 $x + y = 12$

47) _____



Solve the system by substitution or elimination. If a system is inconsistent or has dependent equations, say so.

48) $x + 8y = 6$
 $6x + 7y = -5$

48) _____

49) $-\frac{1}{2}x + y = 9$
 $x + 18 = 2y$

49) _____

50) $2x - y = 9$
 $4x + y = 21$

50) _____

51) $-6x + 5y = -42$
 $2x + 3y = 14$

51) _____

Solve the problem using a system of equations.

52) Paul invested twice as much money in an account paying 6% interest than he did in an account paying 2% interest. If the total interest paid was \$700, how much did he invest in each?

52) _____

53) Anne and Nancy use a metal alloy that is 20.5% copper to make jewelry. How many ounces of a 14% alloy must be mixed with a 24% alloy to form 120 ounces of the desired alloy?

53) _____

54) Best Rentals charges a daily fee plus a mileage fee for renting its cars. Barney was charged \$129.00 for 3 days and 300 miles, while Mary was charged \$232.00 for 5 days and 600 miles. What does Best Rentals charge per day and per mile?

54) _____

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

Simplify.

55) $-7^2 + 11^0 - 5^{-2}$

55) _____

A) $-\frac{1226}{25}$

B) $-\frac{1201}{25}$

C) $-\frac{1202}{25}$

D) $\frac{1226}{25}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Simplify. Write the answer with only positive exponents. Assume that all variables represent nonzero real numbers.

56) $(3p^2q^5)^{-2}(9p^4q^2)^2$

56) _____

57) $\frac{(6x^3y^2)^{-1}}{(3x^3y^3)^3}$

57) _____

58) $\left(\frac{4x^2}{y^3}\right)^3 \left(\frac{10x^2}{y^{-3}}\right)^{-2}$

58) _____

Write the number in standard form.

59) 5.79×10^{-4}

59) _____

For the polynomial function, find the requested value.

60) $f(x) = 7x + 2$; $f(2)$

60) _____

For the given pair of functions, find the requested function.

61) $f(x) = 14x^2 + 9x + 2$ and $g(x) = 3x^2 + 18x - 3$; $(f - g)(x)$

61) _____

62) $f(x) = x^2 - 9$ and $g(x) = 2x + 6$; $(f - g)(3)$.

62) _____

63) $f(x) = x^2 + 4$ and $g(x) = 3x + 6$; $(g \circ f)(7)$.

63) _____

64) $f(x) = 5x^2 + 2x - 1$ and $g(x) = x - 1$; $(f \circ g)(x)$.

64) _____

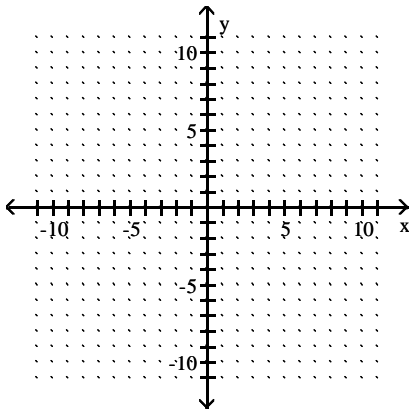
65) $f(x) = x^2 - 2$ and $g(x) = 3x + 3$; $(g \circ f)(x)$.

65) _____

Graph the function.

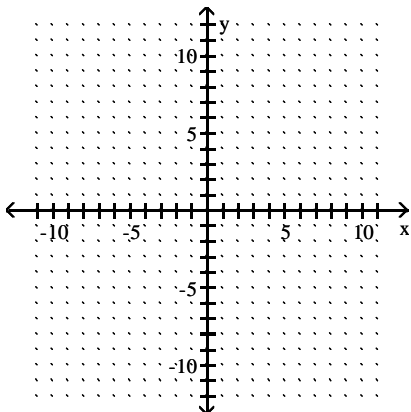
66) $f(x) = x^2 + 2x - 1$

66) _____



67) $f(x) = -x^3 + 5$

67) _____



Perform the indicated operations.

68) $(6k^3 + 4k^2 - k + 8) - (3k^3 - 2k^2 - k - 1) + (2k^3 + 8k^2 - k + 1)$

68) _____

69) $(3x + 10)(x - 10)$

69) _____

70) $(-7m - 8)(-8m^2 + m + 5)$

70) _____

71) $(9x - 5y)^2$

71) _____

72) $\frac{21x^3 + 21x^2 + 6x + 7}{3x}$

72) _____

73) $2x^3 - 5x^2 - 3x - 30 \div x - 4$

73) _____

For the given pair of functions, find the requested function.

74) $f(x) = x^2 - x - 6, g(x) = x - 1$
Find $(fg)(x)$.

74) _____

75) $f(x) = x^2 + 9x + 20, g(x) = x + 4$
Find $\left(\frac{f}{g}\right)(x)$.

75) _____

76) If $f(x) = 12x^3 + 30x^2 - 6x - 28$ and $g(x) = 3x + 9; \left(\frac{f}{g}\right)(2)$.

76) _____

Factor.

77) $12x^2y^5 - 6x^2y^3 - 36x^4y^3$

77) _____

78) $8x + ay + ax + 8y$

78) _____

79) $6x^2 + 11x - 72$

79) _____

80) $4a^2 + 28ab + 49b^2$

80) _____

81) $a^3 + 3a^2 - ab^2 - 3b^2$

81) _____

82) $4k^2 - 49j^2$

82) _____

83) $y^3 - 512$

83) _____

Solve the equation.

84) $3x^2 + 28x = -49$

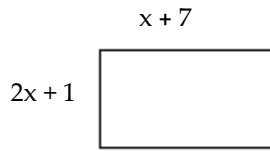
84) _____

85) $4x^2 - 10x = 0$

85) _____

Solve the problem.

- 86) The area of the rectangle shown is 24 in^2 . Find the length and the width of the rectangle. 86) _____



- 87) A ball is projected upward from ground level. After t seconds, its height in feet is a function defined by $f(t) = -16t^2 + 96t$. After how many seconds will it reach a height of 128 ft? 87) _____

Find the domain of the rational function.

- 88) $r(x) = \frac{x^2 - 9x}{x^2 - 2x - 48}$ 88) _____

Simplify the rational expression.

- 89) $\frac{a^2 - 36}{a^2 + 9a + 18}$ 89) _____

Multiply.

- 90) $\frac{7x + 21}{x + 2} \cdot \frac{3x^2 + 12x + 12}{x^2 - 9}$ 90) _____

Divide.

- 91) $\frac{4x - 4y}{20 - 5z} \div \frac{2y - 2x}{z - 4}$ 91) _____

- 92) $\frac{x^2 - 36}{x^2 - 20x + 100} \div \frac{2x - 12}{x^2 - 9x - 10}$ 92) _____

Find the least common denominator for the group of denominators.

- 93) $4a + 12, a^2 + 3a$ 93) _____

Perform the indicated operation and express in lowest terms.

- 94) $\frac{2}{15x} + \frac{4}{21x^2}$ 94) _____

- 95) $\frac{1}{8x^4y^2} - \frac{11}{2xy}$ 95) _____

- 96) $\frac{x}{x^2 - 16} - \frac{6}{x^2 + 5x + 4}$ 96) _____

$$97) \frac{7}{x-1} - \frac{x}{x-4} + \frac{x^2+28}{x^2-5x+4}$$

97) _____

Simplify the complex fraction.

$$98) \frac{\frac{12x+24}{7}}{\frac{15x+30}{5}}$$

98) _____

$$99) \frac{\frac{7}{x} - \frac{x}{7}}{\frac{1}{7} - \frac{1}{x}}$$

99) _____

Simplify the expression and solve the equation.

100) One of the following is an expression to be simplified by algebraic operations, and the other is an equation to be solved. Identify each, and then simplify the one that is an expression and solve the one that is an equation.

100) _____

$$(a) \frac{2x}{3} + \frac{x}{4} = \frac{9}{2} \quad (b) \frac{2x}{3} + \frac{x}{4} - \frac{9}{2}$$

Solve.

$$101) \frac{2}{t} = \frac{t}{5t-12}$$

101) _____

$$102) \frac{6}{y+2} - \frac{3}{y-2} = \frac{9}{y^2-4}$$

102) _____

Answer the question.

103) For the equation $\frac{z^2+5z}{z^2+2z} = 1$, would any potential solutions have to be rejected? Explain.

103) _____

Evaluate.

$$104) -\sqrt{256}$$

104) _____

$$105) \sqrt[3]{-125}$$

105) _____

$$106) 27^{1/3}$$

106) _____

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

Determine the best whole number estimate for the given square root.

$$107) \sqrt{121.01}$$

A) 11

B) 12

C) 10

D) 13

107) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use a calculator to approximate the root to the nearest thousandth.

108) $\sqrt{151}$

108) _____

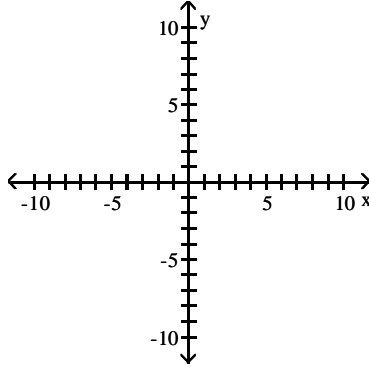
109) $\sqrt[3]{-75}$

109) _____

Graph the function and give its domain and its range.

110) $f(x) = \sqrt{x + 5}$

110) _____



Simplify the expression. Assume that all variables represent positive real numbers.

111) $\left(\frac{4}{25}\right)^{-3/2}$

111) _____

112) $(-8)^{-2/3}$

112) _____

113) $\frac{2^{3/4}x^{-2/3}y^{3/2}}{2^{-5/4}x^{7/3}y^{1/4}}$

113) _____

114) $\left(\frac{x^{-7}y^{-4}}{x^{-4}y^5}\right)^{-3/5}$

114) _____

115) $14^{5/8} \cdot 14^{-1/8}$

115) _____

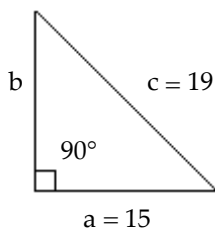
116) $\sqrt[3]{x^5} \cdot \sqrt[3]{x^8}$

116) _____

Use the Pythagorean formula to find the exact length of side b in the figure.

117)

117) _____



Find the distance between the points.

118) $(-3, 8)$ and $(1, 5)$

118) _____

Simplify. Assume that all variables represent positive real numbers.

119) $\sqrt{80k^7q^8}$

119) _____

120) $\sqrt[3]{27a^8b^5}$

120) _____

121) $\sqrt{3} \cdot \sqrt[3]{4}$

121) _____

122) $\sqrt{75} + 10\sqrt{243} - 6\sqrt{48}$

122) _____

123) $\sqrt[3]{108x^9y^7} - \sqrt[3]{32x^{12}y^4}$

123) _____

124) $(4\sqrt{3} + 11)(7\sqrt{3} - 3)$

124) _____

125) $(3 - 2\sqrt{3})^2$

125) _____

126) $\frac{-6}{\sqrt{66}}$

126) _____

127) $\frac{3}{\sqrt[3]{2}}$

127) _____

128) $\frac{-30}{\sqrt{8} + \sqrt{2}}$

128) _____

Write the fraction in lowest terms.

129) $\frac{12 + \sqrt{45}}{3}$

129) _____

Solve the problem.

130) The length a spring is stretched from its natural length with work, W foot-pounds, is given by

$$L = \sqrt{\frac{2W}{k}}$$

where k is a constant for the given spring. If a certain spring has a constant of 50.9, and the spring is to be stretched 3.1 feet from its natural length, how much work will be necessary? Round your answer to the nearest tenth.

130) _____

Solve the equation.

131) $\sqrt[3]{11x} = \sqrt[3]{4x - 35}$

131) _____

132) $5x + \sqrt{x + 42} = 7 + 3x$

132) _____

Perform the indicated operation. Give answer in standard form.

133) $(-5 + 4i) - (6 + 3i) - 11i$

133) _____

134) $(2 + 6i)(9 + 5i)$

134) _____

135) $\frac{9 + i}{1 - i}$

135) _____

Simplify.

136) i^5

136) _____

Provide an appropriate response.

137) True or false? $i^3 = -i$

137) _____

Solve the equation by using the square root property or completing the square.

138) $y^2 = 8$

138) _____

139) $(6s + 3)^2 = 4$

139) _____

Solve by using the quadratic formula.

140) $3m^2 + 10m + 4 = 0$

140) _____

141) $8x^2 + 7x = -2$

141) _____

Decide whether the statement is true or false. If it is false, tell why.

142) If k is a positive number, then the equation $-x^2 = -49k$ has no real solutions.

142) _____

Provide an appropriate response.

143) What is the discriminant for $16x^2 - 8x + 1 = 0$? How many and what type of solutions does this equation have?

143) _____

Solve by any method.

144) $1 - \frac{4}{x} - \frac{45}{x^2} = 0$

144) _____

145) $(-2p + 5)^2 = -5(-2p + 5) - 4$

145) _____

Solve the problem.

146) Ron can mow the lawn in two hours more time than Paul. Working together they can mow the lawn in 3 hours. How long does it take each of them working alone? Round your answers to the nearest tenth of an hour, if necessary.

146) _____

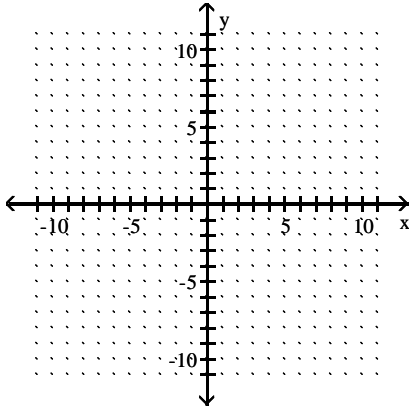
147) A jet plane traveling at a constant speed goes 1500 miles with the wind, then turns around and travels for 1300 miles against the wind. If the speed of the wind is 50 mph and the total flight took 4 hours, find the speed of the plane in still air. 147) _____

148) A rectangular garden has dimensions of 20 feet by 12 feet. A gravel path of equal width is to be built around the garden. How wide can the path be if there is enough gravel for 228 square feet? 148) _____

149) A ladder is resting against a wall. The top of the ladder touches the wall at a height of 9 ft. Find the length of the ladder if the length is 3 ft more than its distance from the wall. 149) _____

Graph the parabola. Identify the vertex, axis, domain and range.

150) $f(x) = -x^2 + 2x - 3$ 150) _____



Answer Key

Testname: LIAL 1033 PRACTICE FOR THE FINAL EXAM

1) $\{5\}$

2) $\{40\}$

3) $(-\infty, \infty)$

4) \emptyset ; contradiction

5) $w = \frac{x + 6y^2}{y}$

6) $p = \frac{-5s - 4}{4 - t}$ or $p = \frac{5s + 4}{t - 4}$

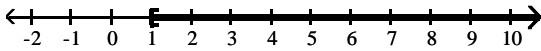
7) 8 min

8) \$4000 at 8%; \$1000 at 9%

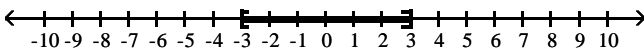
9) 2 km/hr

10) $26^\circ, 26^\circ, 128^\circ$

11) $[1, \infty)$



12) $[-3, 3]$



13) C

14) 96 or less

15) $\{8, 15, 20\}$

16) $\{4, 7, 14, 16, 23, 27\}$

17) $[2, 6)$

18) $(-\infty, 1) \cup [3, \infty)$

19) $\left(\frac{5}{7}, \frac{11}{7}\right)$

20) $(-\infty, 1] \cup \left[\frac{7}{2}, \infty\right)$

21) \emptyset

22) $\left\{-\frac{11}{2}, \frac{7}{2}\right\}$

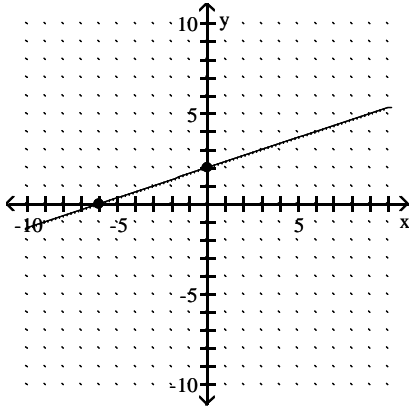
23) $\left\{8, \frac{4}{3}\right\}$

24) $0; \frac{5}{3}; -\frac{12}{5}$

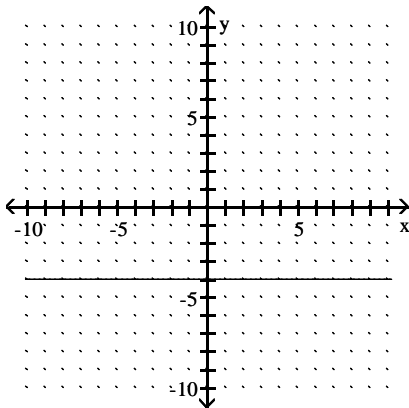
Answer Key

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25) $(0, 2), (-6, 0)$



26) None; $(0, -4)$



27) $-\frac{7}{4}$

28) It is a vertical line.

29) Perpendicular

30) Neither

31) -2600 farms per yr

32) (a) $y = -8x - 57$

(b) $8x + y = -57$

33) (a) $y = 1$

(b) $y = 1$

34) (a) $y = -3x - 16$

(b) $3x + y = -16$

35) (a) $y = -\frac{5}{11}x - \frac{9}{11}$

(b) $5x + 11y = -9$

36) (a) not possible

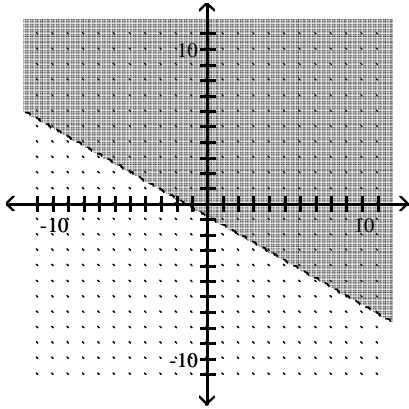
(b) $x = 6$

37) C

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38)



39) C

40) A

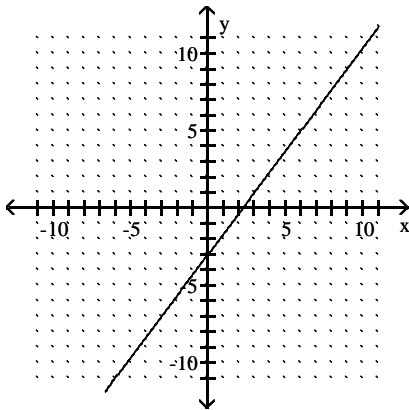
41) Domain: $[1, \infty)$; range: $(-\infty, \infty)$

42) Domain: $\{3, -5, 6\}$; range: $\{0, 1, 9\}$

43) 9

44) $-a^2 - 3a - 2$

45) Domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$



46) B

47) $\{(7, 5)\}$

48) $\{(-2, 1)\}$

49) $\{(x, y) \mid x - 2y = -18\}$; dependent equations

50) $\{(5, 1)\}$

51) $\{(7, 0)\}$

52) \$10,000 at 6%, \$5000 at 2%

53) 42 ounces

54) \$26 per day; 17¢ per mile

55) B

56) $\frac{9p^4}{q^6}$

57) $\frac{1}{162x^{12}y^{11}}$

58) $\frac{16x^2}{25y^{15}}$

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59) 0.000579

60) 16

61) $11x^2 - 9x + 5$

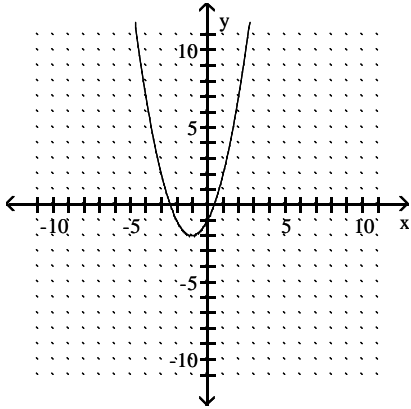
62) -12

63) 165

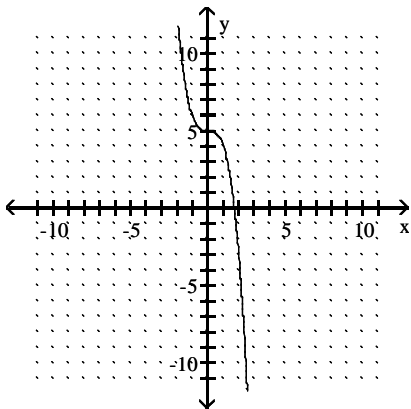
64) $5x^2 - 8x + 2$

65) $3x^2 - 3$

66)



67)



68) $5k^3 + 14k^2 - k + 10$

69) $3x^2 - 20x - 100$

70) $56m^3 + 57m^2 - 43m - 40$

71) $81x^2 - 90xy + 25y^2$

72) $7x^2 + 7x + 2 + \frac{7}{3x}$

73) $2x^2 + 3x + 9 + \frac{6}{x - 4}$

74) $x^3 - 2x^2 - 5x + 6$

75) $x + 5$

76) $\frac{176}{15}$

77) $6x^2y^3(2y^2 - 1 - 6x^2)$

78) $(x + y)(8 + a)$

Answer Key

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79) $(2x + 9)(3x - 8)$

80) $(2a + 7b)^2$

81) $(a + b)(a - b)(a + 3)$

82) $(2k - 7j)(2k + 7j)$

83) $(y - 8)(y^2 + 8y + 64)$

84) $\left\{-7, -\frac{7}{3}\right\}$

85) $\left\{0, \frac{5}{2}\right\}$

86) length: 8 in.; width 3 in.

87) 2 sec and 4 sec

88) $\{x \mid x \neq -6, 8\}$

89) $\frac{a - 6}{a + 3}$

90) $\frac{21(x + 2)}{x - 3}$

91) $\frac{2}{5}$

92) $\frac{(x + 6)(x + 1)}{2(x - 10)}$

93) $4a(a + 3)$

94) $\frac{2(7x + 10)}{105x^2}$

95) $\frac{1 - 44x^3y}{8x^4y^2}$

96) $\frac{x^2 - 5x + 24}{(x - 4)(x + 4)(x + 1)}$

97) $\frac{8x}{(x - 1)(x - 4)}$

98) $\frac{4}{7}$

99) $-(x + 7)$

100) (a) Equation. The solution to the equation is: $\frac{54}{11}$

(b) Expression. The simplified form of the expression is: $\frac{11}{12}x - \frac{9}{2}$

101) $\{4, 6\}$

102) $\{9\}$

103) Yes, the values 0 and -2 must be excluded, because each would make a denominator 0.

104) -16

105) -5

106) 3

107) A

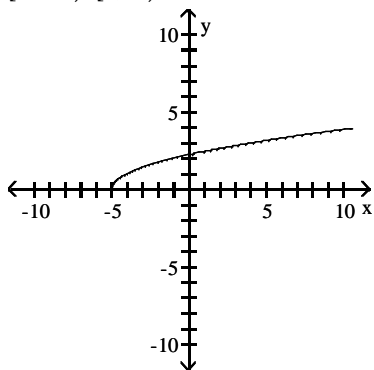
108) 12.288

109) -4.217

Answer Key

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110) $[-5, \infty); [0, \infty)$



111) $\frac{125}{8}$

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

113) $\frac{4y^{5/4}}{x^3}$

114) $x^{9/5}y^{27/5}$

115) $14^{1/2}$

116) $x^{13/3}$

117) $b = \sqrt{136}$

118) 5

119) $4k^3q^4\sqrt{5k}$

120) $3a^2b\sqrt[3]{a^2b^2}$

121) $\sqrt[6]{432}$

122) $71\sqrt{3}$

123) $(3x^3y^2 - 2x^4y)\sqrt[3]{4y}$

124) $51 + 65\sqrt{3}$

125) $21 - 12\sqrt{3}$

126) $-\frac{\sqrt{66}}{11}$

127) $\frac{3\sqrt[3]{4}}{2}$

128) $-5(\sqrt{8} - \sqrt{2})$

129) $4 + \sqrt{5}$

130) 244.6 foot-pounds

131) $\{-5\}$

132) $\{7, \frac{1}{4}\}$

133) $-11 - 10i$

134) $-12 + 64i$

135) $4 + 5i$

136) i

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137) True

138) $\{2\sqrt{2}, -2\sqrt{2}\}$

139) $\left\{-\frac{1}{6}, -\frac{5}{6}\right\}$

140) $\left\{\frac{-5 + \sqrt{13}}{3}, \frac{-5 - \sqrt{13}}{3}\right\}$

141) $\left\{\frac{-7 + i\sqrt{15}}{16}, \frac{-7 - i\sqrt{15}}{16}\right\}$

142) False; the equation is equivalent to $x^2 = 49k$, where x^2 and $49k$ are positive, so it will have two real solutions

143) Discriminant: 0; One rational solution

144) $\{9, -5\}$

145) $\left\{3, \frac{9}{2}\right\}$

146) Paul: 5.2 hr

Ron: 7.2 hr

147) 700 mph

148) 3 ft

149) 15 ft

150) Vertex: $(1, -2)$; Axis: $x = 1$;

Domain: $(-\infty, \infty)$; Range: $(-\infty, -2]$

