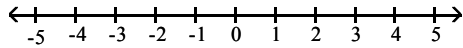


CHAPTER 2

- 1) Solve $-8 - x = 50$
- 2) Solve $\frac{x}{4} = -\frac{7}{3}$
- 3) Solve $-2.4x = 72$
- 4) Solve $21 = -5 - 12x$
- 5) Solve $7 - 3x = 8x - 4$
- 6) Solve $-4n + 7 + 6n = 7n - 2 + 4n - 5$
- 7) Solve $6 - 2(5x - 1) + 4x = 20$
- 8) Solve $10 - 4(2x + 1) - (3x - 4) = -9x + 4 - 4x$
- 9) Solve $\frac{3}{4}x + \frac{2}{3} = \frac{1}{6}$
- 10) Solve $\frac{1}{3}x - \frac{1}{4}(x - 3) = \frac{7}{4}$
- 11) Solve $\frac{1}{2}(20 - 3x) = \frac{1}{3}(14 + x) - 2$
- 12) Solve $A = \frac{1}{2}h(b + B)$ for B
- 13) Solve $h = x + vt + 16t^2$ for v.
- 14) A number increased by 2 is 5 less than twice the number. Find the number.
- 15) The formula for the volume of a cone is $V = \frac{1}{3}\pi r^2h$. Find h if $V = 88 \text{ in}^3$ and $r = 3 \text{ in}$. Leave in terms of π .
- 16) The sum of one-half of a number and five-sixths of the same number is 80. Find the number.

- 17) Solve the inequality, graph the solution on a number line and give the solution in interval notation.

$$3 - 4(3a - 1) > 1$$



- 18) Solve the inequality and give the solution in interval notation. $-4(2x + 1) - 3(x + 2)$

- 19) Solve the inequality and give the solution in interval notation. $\frac{1}{6}x - \frac{2}{5}x > 1$

- 20) Solve the inequality and give the solution in interval notation. $0.08x + 0.04(x - 100) > 32$

- 21) Solve the inequality and give the solution in interval notation. $\frac{1}{5}(x - 1) - \frac{1}{6}(x + 2) > \frac{1}{2}$

- 22) This semester Don has scores of 83, 80, 86, and 90 on his exams. What must he average on the last two exams to have an average of greater than 86 for the semester?

CHAPTER 3

- 23) Solve $\frac{-4}{b - 5} = \frac{-3}{b + 2}$

- 24) What is 36% of 400?

- 25) 18% of what number is 54?

- 26) 90 is what percent of 500?

- 27) If 30 pounds of potatoes will feed 80 people, how many pounds are needed for 220 people?

- 28) The ratio of children to adults at a movie is 3 to 5. If there are a total of 120 people at the movie, find the number of children and adults.

- 29) Mary finds a dress on sale for 40% off the original price. If the original price is \$72, what is
a. the discount? b. the price after the discount?

- 30) Karen buys a new kitchen table for \$760. If the tax rate in her area is 6%, what is the cost after tax is added?

- 31) The sum of two numbers is 16. If one of the numbers is three times as large as the other, find the two numbers.

- 32) If the larger of two consecutive odd numbers is subtracted from twice the smaller, the result is 5. Find the two numbers.
- 33) One of two complementary angles is two more than seven times the other. Find the measure of each angle.
- 34) The difference of two numbers is 5. One-third of the larger number is 15 less than the smaller number. Find the numbers.
- 35) Molly has 27 coins consisting of nickels, dimes, and quarters. The number of dimes is three less than twice the number of nickels, and the number of quarters is three times the number of nickels. How many of each coin does she have?
- 36) A coin collection consists of nickels and quarters. If there are 24 coins in the collection with a total value of \$3.00, how many of each coin are there?
- 37) The length of a rectangle is 3 inches less than twice the width. The perimeter is 54 inches. Find the dimensions of the length and width.
- 38) A bank robber leaves the scene of a crime driving at a rate of 60 mph. A half of an hour later, the police leave from the same location driving at a rate of 70 mph. How long will it take the police to overtake the robber?
- 39) Two hikers started from opposite ends of a 29-mile trail. One hiker walked 1.25 mph slower than the other hiker, and they met after 4 hours. How fast did each hiker walk?
- 40) A total of \$15,000 is invested in two accounts. One of the accounts earns 12% per year, while the other earns 10% per year. If the total interest earned in the first year is \$1600, how much was invested in each account?
- 41) Mary has money invested in two accounts. One account pays 8% annual interest and the other pays 9% annual interest. She has \$400 more in the account that pays 9% than she does in the other account. If the total interest after a year is \$155, how much is invested in each account?
- 42) How many milliliters of a 4% solution of medication must be added to 7 ml of a 1% solution to obtain a 3% solution of the medication?
- 43) How many liters of 100% pure acid should be added to 22 liters of a 30% acid solution to obtain a 45% acid solution?
- 44) A brick house is twice as old as the stucco house next door. Ten years ago, the brick house was three times as old as the stucco house. How old is each house now?

CHAPTER 4

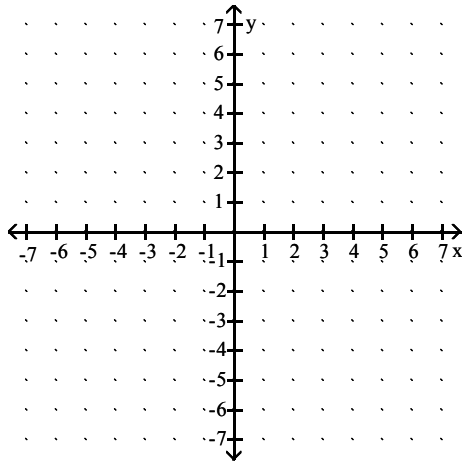
- 45) Is (3, 1) a solution for $2x - y = 5$?

46) Given: $y = -\frac{1}{2}x + 3$ Find the x- and y-intercepts and one other point. Graph.

47) Given: $y = -3$ Find the x- and y-intercepts and one other point. Graph.

48) Given: $3x - y = 6$ Find the x- and y-intercepts and one other point. Graph.

49) Given the following point and slope, find the coordinates of three other points on the line. $(-4, 1)$ $m = \frac{2}{3}$.



50) Given $2x - 3y = 5$ Solve for y and determine the slope and y-intercept.

51) Given $y = \frac{2}{5}x - 5$ Determine the slope and y-intercept. Graph.

52) Find the slope of the line determined by the following pairs of points. $(5, -3), (-5, -9)$

53) a. What is the slope of a vertical line?
b. What is the slope of a horizontal line?

54) Find the coordinates of two points on the given line, and then use those coordinates to find the slope of the line. $2x + y = 4$

55) Write the equation of a line that passes through the points $(0, 3)$ and $(5, -3)$.

56) Write the equation of a line that passes through the points $(-3, 2)$ and $(-3, 5)$.

57) Write the equation of a line that passes through the points $(-1, -5)$ and $(-4, 1)$.

58) Write the equation of a line with slope of $-\frac{3}{4}$ and passes through the point $(-1, -5)$.

- 59) Write the equation of a line perpendicular to the line $y = \frac{1}{5}x - 4$ and passes through the point (2, 3).
- 60) A plumber charges \$80 plus \$40 for each hour of labor. Let n represents the number of hours of labor and c is the total cost.
- Write a linear equation modeling the scenario.
 - Find the total bill if labor is 2 hours.
 - If the total bill is \$240, for how many hours of labor was the customer charged?
 - Graph the equation with n along the horizontal axis and c along the vertical axis.
 - What does the c -intercept represent?

CHAPTER 5

- 61) Evaluate $x^2 - 6x + 1$ when $x = -2$
- 62) Simplify completely. Write with your answer with only positive exponents.
- | | |
|-------------|----------------|
| a. x^{-2} | b. $(-4)^{-3}$ |
| c. 9^0 | d. -8^2 |
- 63) If we neglect air resistance, the polynomial $-16t^2 + h_0$ describes the height of a falling object after falling from an initial height h_0 for t seconds. A cliff is 1720 feet high. If a coin were dropped from the top of the cliff, how high would the coin be from the ground after 3 seconds?
- 64) $(3a - 2) - (-4a - 5a + 7)$
- 65) $(-2x^2 + 3x - 5) + (3x^2 + 5x + 2) + (-3x^2 - 8)$
- 66) $(2n^2 - n + 6) - (-3n^2 - 2n + 3)$
- 67) $(3a^2b^4)(-5ab^2)(-2b)$
- 68) $(-\frac{1}{2}a^2b^3)(\frac{2}{3}ab^4)$
- 69) $(-3x^2y^5)^3$
- 70) $-4x^2y^3(3x^2 + 2x - 4)$
- 71) $(-2xy)^3(-x^3y^4)^2$
- 72) $(x + 3)(x - 5)$

73) $(2x - 3)(4x + 2)$

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

75) $(x - 4)^2$

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

77) $-2x(3x + 1)(3x - 1)$

78) $\frac{x^3}{x^5}$

79) $\frac{p^{-3}}{p^{-7}}$

80) $\frac{-60a^4b^3}{-15a^2b^7}$

81) $\frac{-20a^4b^2 + 36a^3b - 12ab^5}{-4ab^2}$

82) $(-4a^3b^{-2}c)^2$

83) $\left(\frac{x^{-4}}{x^2}\right)^5$

84) $\frac{4xy^{-2}z^2}{x^{-3}y^3z^{-1}}$

85) $(x^3 + 4x^2 + 2x - 1) \div (x + 1)$

86) $(6x^3 - 3x^2 - 8x + 4) \div (2x - 1)$

CHAPTER 6

87) Find the GCF: 36, 48, 84

88) Find the GCF: $6a^5b$, $15a^4b^2$

89) Factor completely: $40x^8y^8 - 16x^3y^6 - 20x^6y^4$

- 90) Factor completely: $ac + bc + a + b$
- 91) Factor completely: $x^2 - x - 72$
- 92) Factor completely: $x^2 + 3x - 70$
- 93) Factor completely: $z^2 - 64$
- 94) Factor completely: $u^2 - 3uv - 40v^2$
- 95) Factor completely: $3x^2 - 3x - 18$
- 96) Factor completely: $5x^4 + 45x^3 + 100x^2$
- 97) Factor completely: $49x^2 - 64$
- 98) Factor completely: $15z^2 - 11z - 12$
- 99) Factor completely: $2ax + ay - 6bx - 3by$
- 100) Factor completely: $18x^2 - 78x - 60$
- 101) Factor completely: $36x^3 - 93x^2y + 60xy^2$
- 102) Factor completely: $49k^2 - 4m^2$
- 103) Factor completely: $6x^2 + 8x - 9x - 12$
- 104) Factor completely: $7x^2 - 7$
- 105) Factor completely: $x^2 - 10xy + 25y^2$
- 106) Factor completely: $x^3 + 8$
- 107) Factor completely: $64 - 27y^3$
- 108) Factor completely: $5a^3 + 625b^3$
- 109) Factor completely: $a^4 - 81$

110) Factor completely: $10a^2b^2 - 10b^3 + 15a^2b - 15b^2$

Solve the equation.

111) $x^2 - x = 20$

112) $m(m - 1)(m + 2) = 0$

113) $y^3 - 16y^2 + 60y = 0$

114) $16x^2 = 25$

115) $3x(x - 9) = -60$

Set up an equation and solve each of the following problems.

116) The width of a rectangle is 6 kilometers less than twice its length. If its area is 216 square kilometers, find the dimensions of the rectangle.

117) One leg of a right triangle is 24 inches, the other leg is 7 inches. Find the length of the hypotenuse .

118) A number is 6 less than its square. Find all such numbers.

119) The product of two consecutive odd integers is 143. Find all pairs of integers that satisfy this condition.

Answer Key

Testname: M007 FINAL REVIEW FALL 2007

1) -58

2) $x = -\frac{28}{3}$

3) $x = -30$

4) $x = -\frac{13}{6}$

5) $x = 1$

6) $n = \frac{14}{9}$

7) $x = -2$

8) $x = -3$

9) $x = -\frac{2}{3}$

10) $x = 12$

11) $x = 4$

12) $B = \frac{2A - hb}{h}$

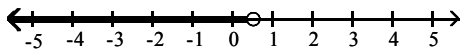
13) $v = \frac{h - x - 16t^2}{t}$

14) $x = 7$

15) $h = \frac{88}{3\pi}$ in

16) 60

17) $a < \frac{1}{2}$



18) $x \geq \frac{2}{5}$ $[\frac{2}{5}, \infty)$

19) $x \leq -\frac{30}{7}$ $(-\infty, -\frac{30}{7}]$

20) $x > 300$ $(300, \infty)$

21) $x \leq 31$ $(-\infty, 31]$

22) $x > 88.5$

23) $b = -23$

24) 144

25) 300

26) 18%

27) 82.5 lbs

28) 45 children and 75 adults

29) a. \$28.80 b. \$43.20

30) \$805.60

31) 4, 12

32) 7, 9

33) $11^\circ, 79^\circ$

34) 30, 25

35) $N = 5, D = 7, Q = 15$

36) $N = 15, Q = 9$

37) 10 in. by 17 in.

38) 3 hours

39) 4.25 mph and 3 mph

40) \$5000 @ 12%, \$10,000 @ 10%

41) \$700 @ 8%, \$1100 @ 9%

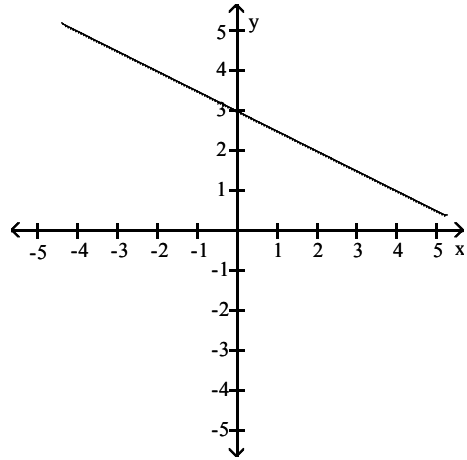
42) 14 ml

43) 6 liters

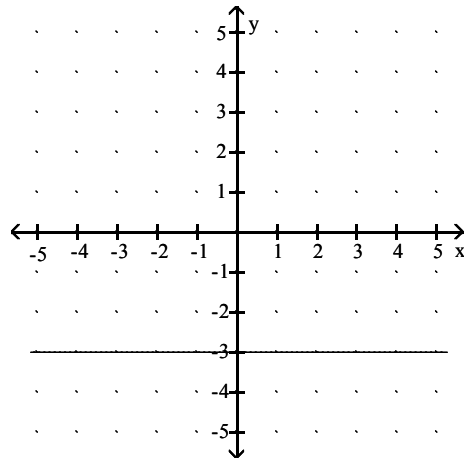
44) Brick house 40 years old, stucco house 20 years old

45) Yes

46)



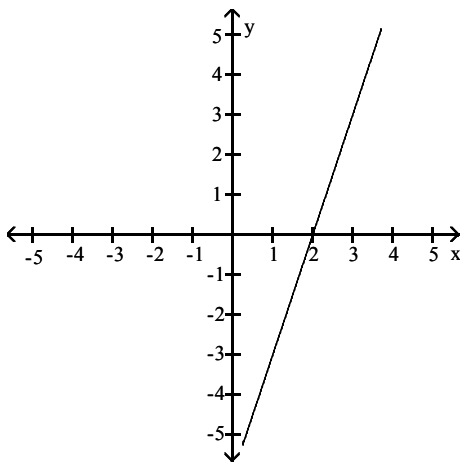
47) no x-intercepts y-intercept is (0, -3)



Answer Key

Testname: M007 FINAL REVIEW FALL 2007

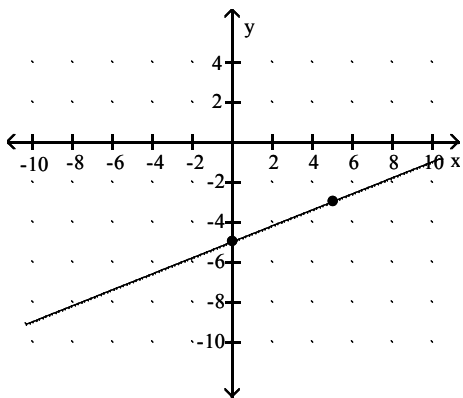
48)



49) answers may vary. examples $(-1,3), (2,5), (5,7)$

50) $y = \frac{2}{3}x - \frac{5}{3}$ $m = \frac{2}{3}$ $b = \left(0, -\frac{5}{3}\right)$

51) $m = \frac{2}{5}$ $b = (0, -5)$



52) $\frac{3}{5}$

53) a. no slope or undefined b. $m = 0$

54) $m = -2$

55) $y = -\frac{6}{5}x + 3$

56) $x = -3$

57) $y = -2x - 7$

58) $y = -\frac{3}{4}x - \frac{23}{4}$

59) $y = -5x + 13$

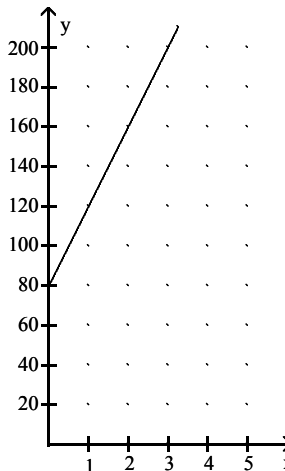
60) a. $c = 40n + 80$

b. \$160

c. 4 hours

e. The initial charge,

d. which is \$80



61) 17

62) a. $\frac{1}{x^2}$ b. $-\frac{1}{64}$ c. 1 d. -64

63) 1576 ft

64) $12a - 9$

65) $-2x^2 + 8x - 11$

66) $5n^2 + n + 3$

67) $30 a^3 b^7$

68) $-\frac{1}{3} a^3 b^7$

69) $-27 x^6 y^{15}$

70) $-12 x^4 y^3 - 8 x^3 y^3 + 16 x^2 y^3$

71) $-8 x^9 y^{11}$

72) $x^2 - 2x - 15$

73) $8x^2 - 8x - 6$

74) $4x^3 - 16 x^2 + 19x - 10$

75) $x^2 - 8x + 16$

76) $36x^2 + 60x + 25$

77) $-18x^3 + 2x$

78) $\frac{1}{x^2}$

79) p^4

80) $\frac{4a^2}{b^4}$

81) $5a^3 - \frac{9a^2}{b} + 3b^3$

Answer Key

Testname: M007 FINAL REVIEW FALL 2007

82) $\frac{16a^6c^2}{b^4}$

83) $\frac{1}{x^{30}}$

84) $\frac{4x^4z^3}{y^5}$

85) $x^2 + 3x - 1$

86) $3x^2 - 4$

87) 12

88) $3a^4b$

89) $4x^3y^4(10x^5y^4 - 4y^2 - 5x^3)$

90) $(a + b)(c + 1)$

91) $(x + 8)(x - 9)$

92) $(x + 10)(x - 7)$

93) $(z + 8)(z - 8)$

94) $(u + 5v)(u - 8v)$

95) $3(x + 2)(x - 3)$

96) $5x^2(x + 4)(x + 5)$

97) $(7x + 8)(7x - 8)$

98) $(3z - 4)(5z + 3)$

99) $(2x + y)(a - 3b)$

100) $6(3x + 2)(x - 5)$

101) $3x(4x - 5y)(3x - 4y)$

102) $(7k + 2m)(7k - 2m)$

103) $(2x - 3)(3x + 4)$

104) $7(x + 1)(x - 1)$

105) $(x - 5y)^2$

106) $(x + 2)(x^2 - 2x + 4)$

107) $(4 - 3y)(16 + 12y + 9y^2)$

108) $5(a + 5b)(a^2 - 5ab + 25b^2)$

109) $(a + 3)(a - 3)(a^2 + 9)$

110) $5b(a^2 - b)(2b + 3)$

111) $x = -4, x = 5$

112) $\{0, 1, -2\}$

113) $\{0, 6, 10\}$

114) $x = \frac{5}{4}, x = -\frac{5}{4}$

115) $x = 4, x = 5$

116) length = 12 km, width = 18 km

117) 25 inches

118) -2 and 3

119) -13 and -11, 11 and 13