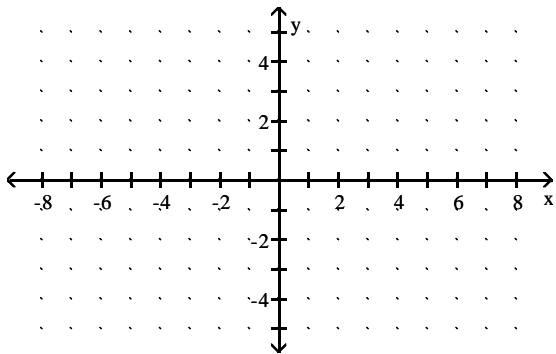


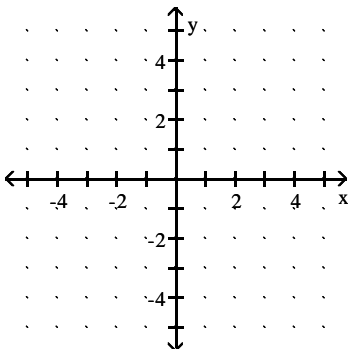
- 1) Solve  $-8 - x = 50$
- 2) Solve  $\frac{x}{4} = -\frac{7}{3}$
- 3) Solve  $-2.4x = 72$
- 4) Solve  $21 = -5 - 12x$
- 5) Solve  $7 - 3x = 8x - 4$
- 6) Solve  $-4n + 7 + 6n = 7n - 2 + 4n - 5$
- 7) Solve  $6 - 2(5x - 1) + 4x = 20$
- 8) Solve  $10 - 4(2x + 1) - (3x - 4) = -9x + 4 - 4x$
- 9) Solve  $\frac{3}{4}x + \frac{2}{3} = \frac{1}{6}$
- 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) A number increased by 2 is 5 less than twice the number. Find the number.
- 13) 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  $\pi$ .
- 14) The sum of one-half of a number and five-sixths of the same number is 80. Find the number.
- 15) Solve the inequality, graph the solution on a number line and give the solution in interval notation.  
 $3 - 4(3a - 1) > 1$
- 16) Solve the inequality and give the solution in interval notation.  $-4(2x + 1) \leq -3(x + 2)$
- 17) Solve the inequality and give the solution in interval notation.  $\frac{1}{6}x - \frac{2}{5}x \leq 1$

- 18) Solve the inequality and give the solution in interval notation.  $0.08x + 0.04(x - 100) > 32$
- 19) Solve the inequality and give the solution in interval notation.  $\frac{1}{5}(x - 1) - \frac{1}{6}(x + 2) \leq \frac{1}{2}$
- 20) 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?
- 21) What is 36% of 400?
- 22) 18% of what number is 54?
- 23) 90 is what percent of 500?
- 24) 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?
- 25) 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?
- 26) The sum of two numbers is 16. If one of the numbers is three times as large as the other, find the two numbers.
- 27) One of two complementary angles is two more than seven times the other. Find the measure of each angle. Complementary angles are angles that have a sum of 90.
- 28) 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?
- 29) 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?
- 30) 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.
- 31) 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?
- 32) 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?
- 33) 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?

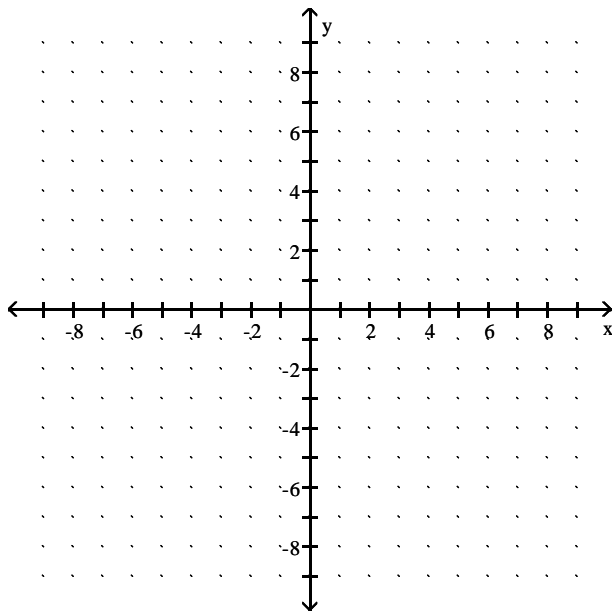
- 34) Mary has money invested in two accounts. One account pays 8% annual interest and the other pays 9% annual interest. She has \$400 more in the account that pays 9% than she does in the other account. If the total interest after a year is \$155, how much is invested in each account?
- 35) How many 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?
- 36) How many liters of 100% pure acid should be added to 22 liters of a 30% acid solution to obtain a 45% acid solution?
- 37) Is (3, 1) a solution for  $2x - y = 5$ ?
- 38) Find the slope of the line determined by the following pairs of points. (5, -3), (-5, -9)
- 39) a. What is the slope of a vertical line?  
b. What is the slope of a horizontal line?
- 40) Given:  $y = -\frac{1}{2}x + 3$  Find the x- and y-intercepts and one other point. Graph.



- 41) Given:  $y = -3$  Find the x- and y-intercepts and one other point. Graph.
- 42) Given:  $3x - y = 6$  Find the x- and y-intercepts and one other point. Graph.
- 43) Given  $y = \frac{2}{5}x - 5$  Determine the slope and y-intercept. Graph.



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



- 45) Given  $2x - 3y = 5$  Solve for  $y$  and determine the slope and  $y$ -intercept.
- 46) Find the coordinates of two points on the given line, and then use those coordinates to find the slope of the line.  $2x + y = 4$
- 47) Write the equation of a line that passes through the points  $(0, 3)$  and  $(5, -3)$ .
- 48) Write the equation of a line that passes through the points  $(-3, 2)$  and  $(-3, 5)$ .
- 49) Write the equation of a line that passes through the points  $(-1, -5)$  and  $(-4, 1)$ .
- 50) Write the equation of a line with slope of  $-\frac{3}{4}$  and passes through the point  $(-1, -5)$ .
- 51) Write the equation of a line perpendicular to the line  $y = \frac{1}{5}x - 4$  and passes through the point  $(2, 3)$ .
- 52) Write the equation of the line with  $m = -\frac{3}{5}$  passing through the point  $(-2, -4)$ .
- 53) Write the equation of the line that has an  $x$ -intercept of  $-1$  and a  $y$ -intercept of  $-3$ .
- 54) Write the equation of the line that contains the point  $(1, 3)$  and is parallel to the line  $x + 5y = 9$ .

- 55) 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?
- 56) In a certain city, the cost of a taxi ride is computed as follows: There is a fixed charge of \$2.95 as soon as you get in the taxi, to which a charge of \$1.65 per mile is added. Find a linear equation that can be used to determine the cost,  $y$ , of an  $x$ -mile taxi ride, and use this equation to find the cost of a 5-mile taxi ride.
- 57) The cost of manufacturing a molded part is related to the quantity produced during a production run. When 100 parts are produced, the cost is \$300. When 600 parts are produced, the cost is \$2800. Find a linear equation that models cost,  $y$  in terms of the number of parts produced,  $x$ .
- 58) Evaluate  $x^2 - 6x + 1$  when  $x = -2$
- 59) Simplify completely. Write with your answer with only positive exponents.
- |             |                |
|-------------|----------------|
| a. $x^{-2}$ | b. $(-4)^{-3}$ |
| c. $9^0$    | d. $-8^2$      |
- 60) 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?
- 61)  $(3a - 2) - (-4a - 5a + 7)$
- 62)  $(-2x^2 + 3x - 5) + (3x^2 + 5x + 2) + (-3x^2 - 8)$
- 63)  $(2n^2 - n + 6) - (-3n^2 - 2n + 3)$
- 64)  $(3a^2b^4)(-5ab^2)(-2b)$
- 65)  $(-\frac{1}{2}a^2b^3)(\frac{2}{3}ab^4)$
- 66)  $(-3x^2y^5)^3$
- 67)  $-4x^2y^3(3x^2 + 2x - 4)$
- 68)  $(-2xy)^3(-x^3y^4)^2$

$$69) (x + 3)(x - 5)$$

$$70) (2x - 3)(4x + 2)$$

$$71) (2x - 5)(2x^2 - 3x + 2)$$

$$72) (x - 4)^2$$

$$73) (6x + 5)^2$$

$$74) -2x(3x + 1)(3x - 1)$$

$$75) \frac{x^3}{x^5}$$

$$76) \frac{p^{-3}}{p^{-7}}$$

$$77) \frac{-60a^4b^3}{-15a^2b^7}$$

$$78) \frac{-20a^4b^2 + 36a^3b - 12ab^5}{-4ab^2}$$

$$79) (-4a^3b^{-2}c)^2$$

$$80) \left(\frac{x^{-4}}{x^2}\right)^5$$

$$81) \frac{4xy^{-2}z^2}{x^{-3}y^3z^{-1}}$$

# Answer Key

## Testname: M101 FINAL REVIEW

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)  $x = 12$

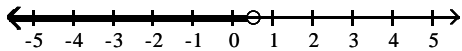
11)  $x = 4$

12)  $x = 7$

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

14) 60

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



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

17)  $x \geq -\frac{30}{7}$        $[-\frac{30}{7}, \infty)$

18)  $x > 300$        $(300, \infty)$

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

20)  $x > 88.5$

21) 144

22) 300

23) 18%

24) a. \$28.80      b. \$43.20

25) \$805.60

26) 4, 12

27)  $11^\circ, 79^\circ$

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

29)  $N = 15, Q = 9$

30) 10 in. by 17 in.

31) 3 hours

32) 4.25 mph and 3 mph

33) \$5000 @ 12%, \$10,000 @ 10%

34) \$700 @ 8%, \$1100 @ 9%

35) 14 ml

36) 6 liters

37) Yes

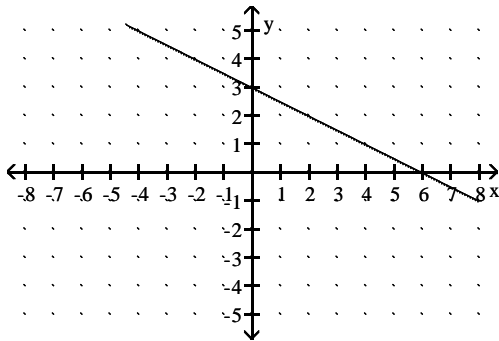
Answer Key

Testname: M101 FINAL REVIEW

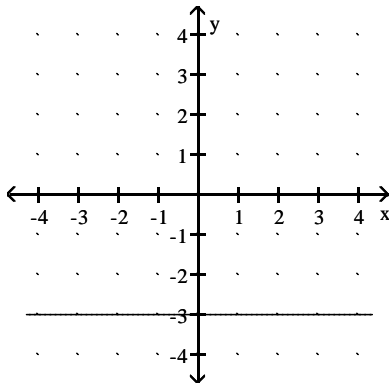
38)  $\frac{3}{5}$

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

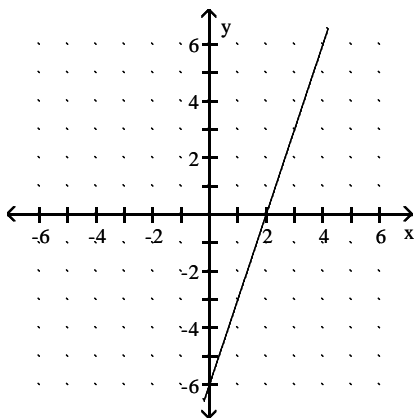
40) y intercept (0, 3), x intercept (6, 0)



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



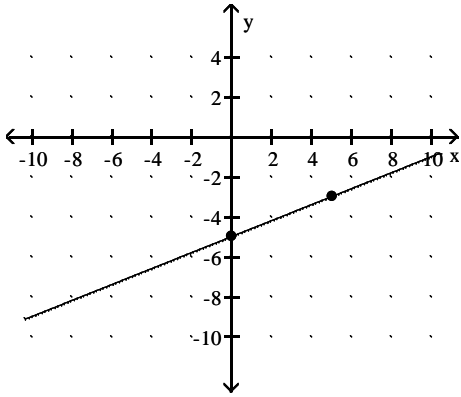
42) x-intercepts (2, 0)      y-intercept is (0,-6)



# Answer Key

## Testname: M101 FINAL REVIEW

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



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

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

46)  $m = -2$

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

48)  $x = -3$

49)  $y = -2x - 7$

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

51)  $y = -5x + 13$

52)  $y = -\frac{3}{5}x - \frac{26}{5}$

53)  $y = -3x - 3$

54)  $y = -\frac{1}{5}x + \frac{16}{5}$  OR  $x + 5y = 16$

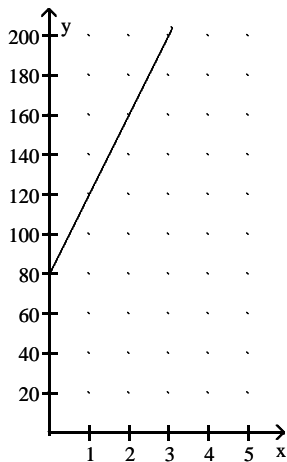
55) a.  $c = 40n + 80$

b. \$160

c. 4 hours

d.

e. The initial charge, which is \$80



56)  $C(x) = 2.95 + 1.65x$   
\$11.20

## Answer Key

Testname: M101 FINAL REVIEW

57)  $C(x) = 5x - 200$

58) 17

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

60) 1576 ft

61)  $12a - 9$

62)  $-2x^2 + 8x - 11$

63)  $5n^2 + n + 3$

64)  $30a^3b^7$

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

66)  $-27x^6y^{15}$

67)  $-12x^4y^3 - 8x^3y^3 + 16x^2y^3$

68)  $-8x^9y^{11}$

69)  $x^2 - 2x - 15$

70)  $8x^2 - 8x - 6$

71)  $4x^3 - 16x^2 + 19x - 10$

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

73)  $36x^2 + 60x + 25$

74)  $-18x^3 + 2x$

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

76)  $p^4$

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

78)  $5a^3 - \frac{9a^2}{b} + 3b^3$

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

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

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