



Success Center Practice Sheet

Math 94 Review

Evaluate

1) $(4)(-3) + 16 \div (4 + 4)$

2) $12 \div 3(2) + |-1| - 5$

3) $-3^2 + (-2)^2$

Simplify

4) $4a - b - 6a + 3 - 2b$

5) $3x^3 - 2x^2 - 7x^3 - 4x^2$

6) $-4 + 2x + 10 + 3x - 7x$

7) $-3y^2 + 4 - [3(2y - 1) + y^2]$

8) $3 - 2x^2 - [2(3 + x) - x^2]$

Perform the following operations

9) Subtract the sum of 4 and -9 from 7

10) Subtract the difference of 10 and 6 from 8

11) Evaluate $x^2y + 2y^2$ if $x = 2$ and $y = -2$

12) Evaluate $2x^2 - 3xy + y^2$ if $x = 1$ and $y = -2$

Solve for x

13) $4x - 2(x + 2) = 4x + 2$

14) $-3x + 6 = 5(x - 2)$

15) $\frac{x}{2} + 1 = \frac{x}{4}$

16) $\frac{2}{3}x + 1 = \frac{1}{2}$

17) $3x - 4 - 5x + 7 = 0$

18) $\frac{2}{3}(x + 1) = 4$

Solve for x and graph

19) $3x - 2 > x + 10$

21) $-3x + 4 < -x + 2$

20) $\frac{2}{3}x + 1 \leq 3$

22) $\frac{-3}{4}x - 2 \geq 4$

Answer the following

- 23) Ann is 8 years younger than Sue. How old is Ann if the sum of their ages is 20?
- 24) The sum of two numbers is 40. Find the numbers if one is 7 more than twice the other.
- 25) The length of a rectangle is 5 less than twice the width. Find the dimensions if the perimeter is 110 feet.
- 26) Find 3 consecutive even integers whose sum is -24 .
- 27) Find 2 consecutive integers such that twice the second is 10 more than the first.
- 28) Jim has 100 coins made up of nickels and quarters. How many does he have of each if the total value is \$10.00?
- 29) Mika leaves Boston for Baltimore at 10:00am, traveling at 45 mph. One hour later, John leaves Baltimore for Boston on the same route, traveling 50 mph. If the two cities are 425 miles apart, when will Mika and John meet?
- 30) Martina leaves home at 9:00am, bicycling at the rate of 24 mph. Two hours later, Bill leaves, driving at the rate of 48 mph. At what time will Bill catch up with Martina?
- 31) How many liters of 5% acid solution must be added to 30 liters of a 10% solution to make an 8% solution?

Graph

- 32) The points: A (1,4) B (-2,3) C (3,-5) D (-4,-1) E(0,3) F(4,0)
- 33) $y = \frac{1}{3}x + 3$ What is the slope, y-intercept, and x-intercept?
- 34) $y = 4x - 1$ What is the slope, y-intercept, and x-intercept?
- 35) $3x + 4y = 12$ What is the slope, y-intercept, and x-intercept?
- 36) $x = 5$ What is the slope?
- 37) $y = -1$ What is the slope?

Find the slope between the set of points

38) (3,6) and (8,12)

40) (10,2) and (5,7)

39) (-2,1) and (0,-3)

41) (-1,-1) and (-5,0)

Determine the equation of the line

42) Through the point (0, -2) and with a slope of 4

43) Through the point (2, 5) and with a slope of -1

44) Through the points (3, 4) and (4, 6)

45) Through the points (4, 5) and (6, -1)

Determine whether the lines are parallel, perpendicular, or neither

46) $2x + 3y = 12$ and $2y = 3x - 4$

47) $y = 4x + 9$ and $2y - 8x = 10$

Solve the following system of equations

48) $x + 5y = 2$

51) $2x - 3y = 5$

$2x + 3y = -3$

$y + 2x = 9$

49) $2x + 3y = 21$

52) $x = \frac{3}{4}y + 2$

$3x + 2y = 19$

$y = x + 1$

50) $2x + y = 4$

53) $y + 5x = 4$

$3x - 2y = -1$

$x = 2y + 3$

Write in Scientific Notation

54) 26,000

55) 0.00519

Write in Decimal Notation

56) 3.7×10^3

57) 2.47×10^{-2}

Multiply or divide and write in scientific notation.

58) $(2 \times 10^3)(3 \times 10^4)$

59) $(5 \times 10^8)(3 \times 10^{-3})$

60) $(8 \times 10^5) \div (4 \times 10^3)$

61) $(1.2 \times 10^5) \div (4 \times 10^2)$

Multiply

62) $(-2a^2b^3c)(4a^3bc^2)$

65) $(-3x + 5)(-4x - 3)$

63) $(3x^4yz^{-3})(5x^2y^4)^2$

66) $(2x + 3)^2$

64) $(2x - 4)(3x + 2)$

67) $(2 - 4x)^2$

Simplify

68) $(2a^2)^4$

71) $\frac{(xy^2)^3}{(x^2y^3)^3}$

69) $(-3a^3b^{-4})^2$

72) $\frac{a^{-4}}{a^5}$

70) $\frac{6x^2}{2x^{-3}}$

Write with positive exponents

73) $\frac{2x^2y^{-5}}{3a^4b^2}$

76) $\frac{3a^2b^{-4}}{4x^{-1}y}$

74) $a^{-2}b^{-3}$

77) $3x^2y^{-5}$

75) $\frac{-2a}{x^{-2}y^{-4}}$

78) $-4x^{-1}y^{-2}$

79) $\frac{15a^{-2}b^3}{3x^2y^{-4}}$

Divide

80) $\frac{10x^5+55x^3+25x^2}{5x^2}$

82) $(x^2 + 3x - 10) \div (x - 2)$

81) $\frac{24a^2b^5+8a^5b^4-8a^2b^3}{-8a^2b^3}$

83) $(x^4 + 5x^2 - 36) \div (x + 2)$

Factor completely

84) $2a + 2b + ac + bc$

85) $2xa + 2xb - a - b$

86) $8x^2y - 2xy + 16xy^2$

87) $5y + x - 10y^2 - 2xy$

88) $x^2 + 2x - 24$

89) $4x^2 - 12x + 9$

90) $2x^2 - 7x - 4$

91) $3x^2 - 12$

92) $2x^2 - 2x - 12$

93) $3x^3 + 9x^2 + 6x$

94) $36x^2 - 4y^2$

95) $x^3 - 6x^2 + 4x - 24$

96) $x^4 - 81$

Solve for x

97) $x^2 + 13x + 40 = 0$

98) $2x^2 = 72$

99) $3x^2 - 5x = 2$

100) $x^2 + 4x = 0$

Simplify each fraction

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

102) $\frac{2x^3-8x^2+8x}{6x^2-12x}$

103) $\frac{4a^2b^3}{-8a^3b^5}$

104) $\frac{6a^4b^7}{8ab^9}$

Multiply or divide

105) $\frac{2xy^2}{ab^3} \cdot \frac{5a^3b^5}{8xy^3}$

106) $\frac{16-y^2}{y^2-11y+30} \cdot \frac{2y-10}{2y^2-8y}$

107) $\frac{8x^3y}{27xy^3} \div \frac{16x^3y}{45y}$

108) $\frac{a^2-9b^2}{4a^2+12ab} \div \frac{a^2-ab-6b^2}{12ab}$

Add or subtract

109) $\frac{10x}{2x^2+x} + \frac{5}{2x^2+x}$

110) $\frac{5x+6}{2y} - \frac{3x+2}{2y}$

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

112) $\frac{5}{x+2} - \frac{3}{x+1}$

What values of x would make the expression undefined?

113) $\frac{3x}{x+7}$

114) $\frac{x+4}{2x-3}$

115) $\frac{6}{x^2-2x-15}$

Answers

1) -10

2) 4

3) -5

4) $-2a - 3b + 3$

5) $-4x^3 - 6x^2$

6) $-2x + 6$

7) $-4y^2 - 6y + 7$

8) $-x^2 - 2x - 3$

9) 12

10) 4

11) 0

12) 12

13) $x = -3$

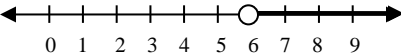
14) $x = 2$

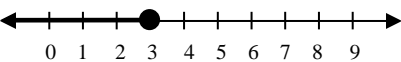
15) $x = -4$

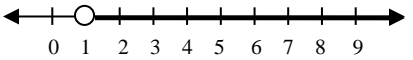
16) $x = \frac{-3}{4}$

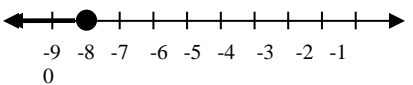
17) $x = \frac{3}{2}$

18) $x = 5$

19) $x > 6$ A horizontal number line with arrows at both ends, labeled from 0 to 9. An open circle is placed at 6, and the line is shaded to the right of 6.

20) $x \leq 3$ A horizontal number line with arrows at both ends, labeled from 0 to 9. A closed circle is placed at 3, and the line is shaded to the left of 3.

21) $x > 1$ A horizontal number line with arrows at both ends, labeled from 0 to 9. An open circle is placed at 1, and the line is shaded to the right of 1.

22) $x \leq -8$ A horizontal number line with arrows at both ends, labeled from -9 to -1. A closed circle is placed at -8, and the line is shaded to the left of -8.

23) Ann is 6

24) $11, 29$

25) Width = 20 ft and length = 35 ft

26) $-6, -8, -10$

27) $8, 9$

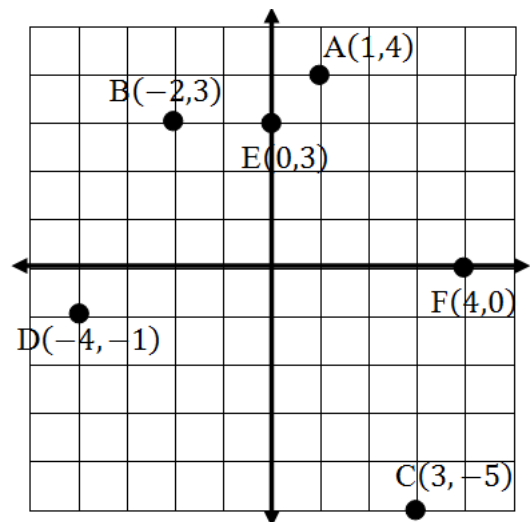
28) 75 nickels, 25 quarters

29) 3 pm

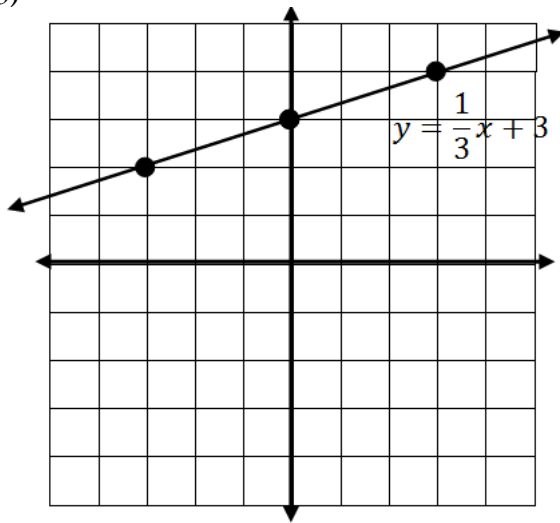
30) 1 pm

31) 20 liters

32)



33)

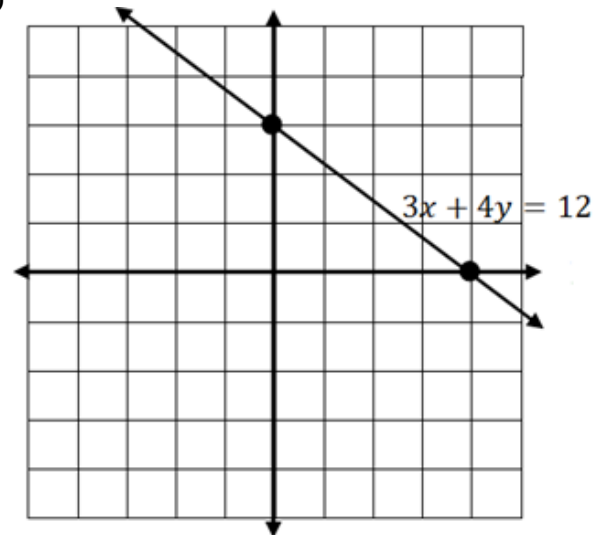


$$m = \frac{1}{3}$$

y - intercept = (0, 3)

x - intercept = (-9, 0)

35)

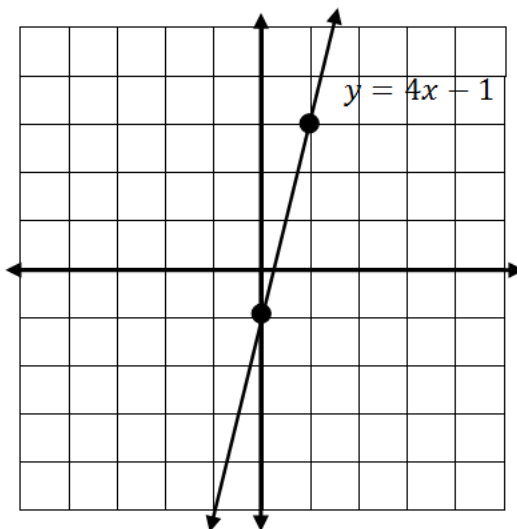


$$m = -\frac{3}{4}$$

y - intercept = (0, 3)

x - intercept = (4, 0)

34)

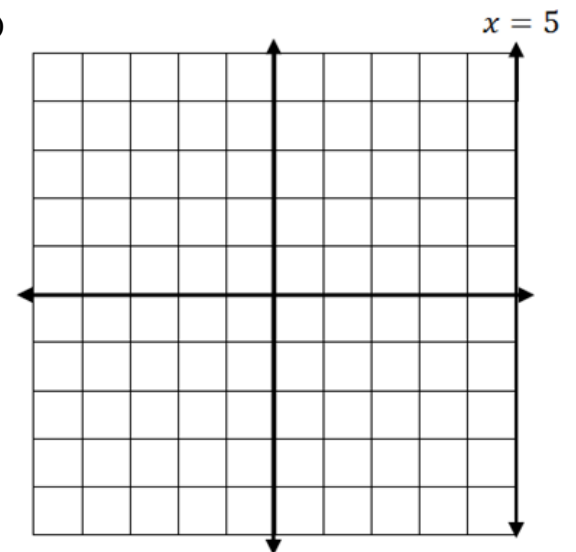


$$m = 4$$

y - intercept = (0, -1)

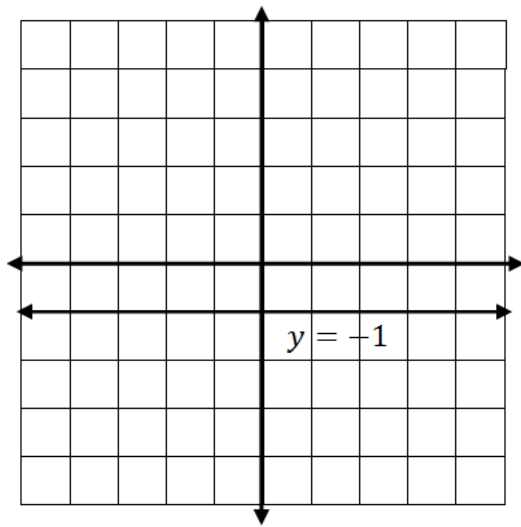
x - intercept = $\left(\frac{1}{4}, 0\right)$

36)



$m = \text{undefined}$

37)



$$m = 0$$

38) $\frac{6}{5}$

39) -2

40) -1

41) $-\frac{1}{4}$

42) $y = 4x - 2$

43) $y = -x + 7$

44) $y = 2x - 2$

45) $y = -3x + 17$

46) Perpendicular

47) Parallel

48) $(-3, 1)$

49) $(3, 5)$

50) $(1, 2)$

51) $(4, 1)$

52) $(11, 12)$

53) $(1, -1)$

54) 2.6×10^4

55) 5.19×10^{-3}

56) 3700

57) 0.0247

58) 6×10^7

59) 1.5×10^6

60) 2×10^2

61) 3×10^2

62) $-8a^5b^4c^3$

63) $\frac{75x^8y^9}{z^3}$

64) $6x^2 - 8x - 8$

65) $12x^2 - 11x - 15$

66) $4x^2 + 12x + 9$

67) $4 - 16x + 16x^2$

68) $16a^8$

69) $\frac{9a^6}{b^8}$

70) $3x^5$

71) $\frac{1}{x^3y^3}$

72) $\frac{1}{a^9}$

73) $\frac{2x^2}{3a^4b^2y^5}$

74) $\frac{1}{a^2b^3}$

75) $-2ax^2y^4$

76) $\frac{3a^2x}{4b^4y}$

77) $\frac{3x^2}{y^5}$

78) $\frac{-4}{xy^2}$

79) $\frac{5b^3y^4}{a^2x^2}$

80) $2x^3 + 11x + 5$

81) $-3b^2 - a^3b + 1$

82) $x + 5$

83) $x^3 - 2x^2 + 9x - 18$

84) $(a + b)(2 + c)$

85) $(a + b)(2x - 1)$

86) $2xy(4x - 1 + 8y)$

87) $(5y + x)(1 - 2y)$

88) $(x + 6)(x - 4)$

89) $(2x - 3)(2x - 3)$ or $(2x - 3)^2$

90) $(2x + 1)(x - 4)$

91) $3(x - 2)(x + 2)$

92) $2(x - 3)(x + 2)$

93) $3x(x + 2)(x + 1)$

94) $4(3x + y)(3x - y)$

95) $(x^2 + 4)(x - 6)$

96) $(x^2 + 9)(x + 3)(x - 3)$

97) $-8, -5$

98) $-6, 6$

99) $-\frac{1}{3}, 2$

100) $0, -4$

101) $\frac{a-5}{a+1}$

102) $\frac{x-2}{3}$

103) $\frac{-1}{2ab^2}$

$$104) \frac{3a^3}{4b^2}$$

$$105) \frac{5a^2b^2}{4y}$$

$$106) \frac{-4-y}{y(y-6)}$$

$$107) \frac{5}{6xy^2}$$

$$108) \frac{3b}{a+2b}$$

$$109) \frac{5}{x}$$

$$110) \frac{x+2}{y}$$

$$111) x + 4$$

$$112) \frac{2x-1}{(x+2)(x+1)}$$

$$113) -7$$

$$114) \frac{3}{2}$$

$$115) -3, 5$$

Success Center Practice Sheet

Math 94 Review