My Math Plan Assessment #1 Study Guide

1. Find the ***x*-intercept** and the ***y*-intercept** of the linear equation.

$8x - 3y = 43$

2. Use factoring to solve the quadratic equation.

$x^2 + 9x + 1 = -17$

3. Find the difference.

$-6 - (-13)$

4. Find the difference.

$-13 - 18$

5. Multiply and simplify the radical expression.

$(\sqrt{3} - 5)(\sqrt{5} - 2)$

6. Multiply and simplify the radical expression.

$(\sqrt{7} - 9)(\sqrt{7} + 5)$

7. Perform the indicated operations and simplify.

$5\sqrt{20} + 5\sqrt{45} - 4\sqrt{80}$

8. Perform the indicated operations and simplify.

$4\sqrt{50} + 3\sqrt{32} - 3\sqrt{98}$

9. Simplify the expression.

$\sqrt[3]{250x^9}$

10. Simplify the expression.

$\sqrt[3]{-72x^{12}}$

11. Solve the linear inequality.

$2x + 5 < -11$

12. Solve the linear inequality.

$-3x + 15 > -12$

13. Solve the linear inequality.

$-2x + 4 \geq -8$

14. Solve the linear inequality.

$3x - 12 \leq -4$

15. Find the **LCM** of the two terms.

$64x^5y^2,\ 24x^4y^3z$

16. Find the **LCM** of the two terms.

$5x^2y^5z^4\ ,\ 19x^3y^4z^3$

17. Find the sum.

$\frac{3}{5} + \frac{7}{25} + \frac{2}{3}$

18. Add the mixed numbers and simplify the result.

$3\frac{2}{5} + 5\frac{3}{4}$

19. Rationalize the denominator and simplify if possible.

$\frac{3}{2 - \sqrt{7}}$

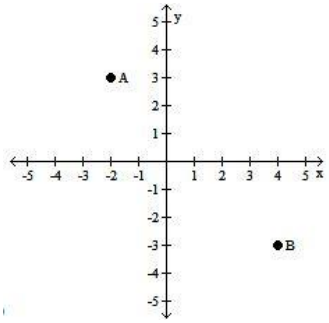
20. Find the *x*- and *y*-intercepts and graph the linear equation.

$3x - 4y - 24 = 0$

21. Solve the proportion.

$\frac{6}{x} = \frac{8}{21}$

22. Identify the coordinates of points A and B.



23. Kara has five exam scores of 67, 74, 60, 85, and 87 in her biology class. What score does she need on the final exam to have a mean (average) grade of 72? Round your answer to two decimal places, if necessary. (All exams have a maximum of 100 points.)

24. The price of a computer is $250. The sales tax is 7%.
What is the total cost of the computer?

25. Let a and b be the lengths of the legs and let c be the length of the hypotenuse of a right triangle. Using the Pythagorean Theorem, find the length of the side not given.

$a = 5, b = 12$

26. Find the missing rate, base, or amount.

40% of 259 is _____

27. Solve the following linear equation using equivalent equations to isolate the variable. Write your solution as a whole number.

$y - 28 = 5$

28. If the **quotient** of 495 and 5 is **decreased** by 97, what is the **difference**?

29. Evaluate the following polynomial at $x = 6$.

$9x + 2x^2 - 8$

30. Evaluate the following expression:
$8 + (5)^2 \div (3 + 2) - 3$

31. Find the following quotient.

$$\frac{(-34) + 37}{-1}$$

32. Simplify the algebraic expression by combining the like (or similar) terms.

$2a - 3x^2 - 1 - 5x^2 - 4a + 7$

33. Solve the linear equation using equivalent equations to isolate the variable.
$11x + 7x = 35 + 29$

34. Find the prime factorization of the following number.

90

35. Reduce the fraction to its simplest form.
$\frac{-42}{12}$

36. Solve the linear equation using equivalent equations to isolate the variable. Express your solution as an integer or as a simplified fraction.

$\frac{7}{3}x - \frac{5}{3}x = \frac{-1}{7} + \frac{2}{7}$

37. Round the decimal number to the nearest thousandth.

1.29954

38. Find the difference.

$146.317 - 87.43$

39. Find the quotient rounded to the nearest tenth.

$8.85 \div 7.8$

40. Write 4.437×10^{-5} in decimal form.

41. Change the following fraction to a percent. Write your answer in percent form. Round your answer to the nearest tenth of a percent, if necessary.

$\frac{2}{9}$

42. A real estate agent works on a 13% commission. What is her commission on a house that she sold for $859,300? Follow the problem-solving process and round your answer to the nearest cent, if necessary.

43. Evaluate the following algebraic expression at $x = -4$, $y = 2$ and simplify your answer.

$-2x^2 + 5y^2 - 6$

44. Solve the linear equation and simplify your answer. Express your solution as an integer, a simplified fraction, or a decimal rounded to two decimal places.

$-6y + 15 = 9y - 15$

45. Solve the following linear equation and simplify your answer.

$-2 - 3(y - 6) = 5(4y - 2) - 7$

46. Find the slope determined by the following pair of points.

$(-2, 7)$, $(7, 3)$

47. Find the equation (in slope-intercept form) of the line passing through the points with the given coordinates.

$(3, -2)$, $(6, 5)$

48. Perform the indicated operation by removing the parentheses and combining like terms.

$(6x^2 - 12) + (9x^2 - 14x - 4)$

49. Multiply the polynomials using the distributive property and combine like terms.

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

50. Multiply the polynomials using the distributive property and combine like terms.

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

51. Factor the given polynomial by finding the greatest common monomial factor (or the negative of the greatest common monomial factor) and rewrite the expression.

$-14x - 56xy - 63x^2$

52. Completely factor the trinomial, if possible.

$4t^2 + 25t + 6$

53. Completely factor the trinomial, if possible.

$6t^3 + 41t^2 - 7t$

54. Completely factor the polynomial, if possible.

$25 - 81x^2$

55. Divide the following and reduce the answer to its simplest terms.

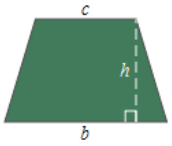
$\frac{-2}{21} \div \frac{5}{24}$

56. Solve the following formula for the indicated variable.

$P = 2l + 2w$; solve for w

57. The area of a trapezoid is 44 square meters. One base is 3 meters long and the other is 8 meters long. Find the height of the trapezoid.

$A = \frac{1}{2}h(b + c)$



58. Simplify the expression. Assume all variables represent positive numbers.

$\sqrt{48x^3y^6}$

59. Multiply and reduce the product to lowest terms.

$$\frac{35a^2}{4b} \cdot \frac{8b^3}{14a^3}$$

60. Write the number in scientific notation.

681,000

61. Evaluate the following expression.

$(3^3 - 6) \div 3 + 4^2 \cdot 2$

62. Find the perimeter of a rectangle with a length of 4.2 centimeters and a width of 2.9 centimeters.

63. Find the area of a triangle with a base of 6 inches and a height of 9 inches.

64. Find the volume of a rectangular solid with a length of 5.1 feet, a width of 3.5 feet, and a height of 2 feet. Round your answer to two decimal places.

65. Simplify the expression.

$2x^2 \cdot x^4$

66. Simplify the expression.

$$\frac{6y^8}{-2y^5}$$

67. Simplify the expression.

$(4a^2)^3$

68. Simplify the expression.

$5x^0 + y^0$

69. Completely factor the polynomial, if possible.

$x^3 - 27y^3$

70. Completely factor the polynomial, if possible.

$2x + 2y + bx + by$

71. Simplify the expression using positive exponents.

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

72. Find the GCF for the set of terms.

$28c^2d^4, 14c^3, 42cd^3$

73. Find the difference.

$\frac{2}{a} - \frac{3}{4}$

74. If the **product** of 16 and 5 is **increased** by 42, what is the **sum**?

75. Perform the indicated operation by removing the parentheses and combining like terms.

$(4b^3 - 3b^2 + b) - (-2b^3 + b^2 - 5b)$

76. Simplify the expression using the properties of exponents. (The answer should contain only positive exponents.)

$\left(\frac{2a^3b^{-1}}{b^3}\right)^2$

77. Rationalize the denominator and simplify if possible.

$\sqrt[3]{\frac{x^5}{9xy}}$

78. The sum of two consecutive integers is -175. Find the two integers.

79. 14 times the difference between a number and 5 is equal to -98. Find the number.

80. Evaluate the expression at $x = 3, y = -2$, and $z = 4$.

$$\frac{8x - 2y}{3z}$$

81. The discount on a new refrigerator was \$225. This was a discount of 20%. What was the original price of the refrigerator?

82. Write an equation, in slope-intercept form, of the line through the given point *P* with the given characteristic.

$P(-5, 4);\ 5x - 4y = 9$

a. Parallel to the given line

b. Perpendicular to the given line

83. Find the product of the binomial factors.

$(2x - 3)^2$

84. Factor the polynomial. If the polynomial does not factor, write "not factorable".

$25x^2 + 9$

85. A total of \$7000 is invested: part at 6% and the remainder at 10%. How much is invested at each rate if the annual interest is \$520?

86. Solve the following linear equation.

$$\frac{3}{8}\left(y - \frac{1}{2}\right) = \frac{1}{8}\left(y + \frac{1}{2}\right)$$

87. Two planes, which are 2660 miles apart, fly toward each other. Their speeds differ by 65 mph. If they pass each other in 4 hours, what is the speed of each plane?

88. Find the following quotient. If the quotient is undefined, state undefined.

$$\frac{-17}{0}$$

89. Your bank account indicates that you are overdrawn on your checking account by \$279. How much must you deposit to bring the checking account balance up to \$750?

90. Find the average of the following set of integers.

$56, -28, 93, 84, -60$

91. Louis has to buy a calculator for $49, graph paper for $9, a textbook for $117, and a notebook for $6. If Louis has $250, how much will he have left after his purchase?

92. Simplify the following absolute value expression.

$-|-12|$

93. Solve the linear equation using equivalent equations to isolate the variable.

$-7.2 = -1.6x - 5.6$

94. Change the following mixed number to an improper fraction and reduce if possible.

$3\frac{8}{10}$

95. Find the difference.

$1 - \frac{7}{9}$

96. Find the difference. Write your answer in mixed number form.

$31\frac{3}{7} - 26\frac{6}{7}$

97. Find $\frac{2}{3}$ of $\frac{3}{8}$.

98. Solve the linear equation.

$\frac{5}{8}y = -5$

99. Write the following comparison as a ratio reduced to lowest terms.

18 quarters to 6 dollars

100. Change the following decimal to a fraction in lowest terms.

0.175

Answer Key

1. x-int: $(\frac{43}{8}, 0)$ y-int: $(0, \frac{-43}{3})$
2. $x = -6, -3$
3. 7
4. -31
5. $\sqrt{15} - 2\sqrt{3} - 5\sqrt{5} + 10$
6. $-38 - 4\sqrt{7}$
7. $9\sqrt{5}$
8. $11\sqrt{2}$
9. $5x^3\sqrt[3]{2}$
10. $-2x^4\sqrt[3]{9}$
11. $x < -8$
12. $x < 9$
13. $x \leq 6$
14. $x \leq \frac{8}{3}$
15. $192x^5y^3z$
16. $95x^3y^5z^4$
17. $\frac{116}{75}$
18. $9\frac{3}{20}$
19. $-2 - \sqrt{7}$
20. x-int: $(8, 0)$ y-int: $(0, -6)$
21. $\frac{63}{4}$
22. A = $(-2, 3)$ B = $(4, -3)$
23. 59
24. \$267.50
25. $c = 13$
26. 103.6
27. $y = 33$
28. 2
29. 118
30. 10
31. -3
32. $-8x^2 - 2a + 6$
33. $x = \frac{32}{9}$
34. $2 \cdot 3 \cdot 3 \cdot 5$
35. $\frac{-7}{2}$
36. $x = \frac{3}{14}$
37. 1.300
38. 58.887
39. 1.1
40. 0.00004437
41. 22.2%
42. \$111,709
43. -18
44. $y = 2$
45. $y = \frac{33}{23}$
46. $m = \frac{-4}{9}$
47. $y = \frac{7}{3}x - \frac{27}{3}$
48. $15x^2 - 14x - 16$
49. $2x^2 + 5x - 12$
50. $x^3 - 8$
51. $-7x(9x + 8y + 2)$
52. $(4t + 1)(t + 6)$
53. $t(6t - 1)(t + 7)$
54. $(5 - 9x)(5 + 9x)$
55. $\frac{-16}{35}$
56. $w = \frac{P-2l}{2}$
57. $h = 8$ m
58. $4xy^3\sqrt{3x}$
59. $\frac{5b^2}{a}$
60. 6.81×10^5
61. 39
62. 14.2 cm
63. 27 in^2
64. 35.7 ft^3
65. $2x^6$
66. $-3y^3$
67. $64a^6$
68. 6
69. $(x - 3y)(x^2 + 3xy + 9y^2)$
70. $(x + y)(2 + b)$
71. $\frac{y^3}{8x^3}$
72. $14c$
73. $\frac{8-3a}{4a}$
74. 122
75. $6b^3 - 4b^2 + 6b$
76. $\frac{4a^6}{b^8}$
77. $\frac{x\sqrt[3]{3xy^2}}{3y}$
78. $-88, -87$
79. -2
80. $\frac{7}{3}$
81. \$1125
82. a. $y = \frac{5}{4}x + \frac{41}{4}$ b. $y = \frac{-4}{5}x$
83. $4x^2 - 12x + 9$
84. not factorable
85. \$4500 at 6% ; \$2500 at 10%
86. $y = 1$
87. 300 mph, 365 mph
88. undefined
89. \$1029
90. 29
91. \$69
92. -12
93. $x = 1$
94. $\frac{19}{5}$
95. $\frac{2}{9}$
96. $4\frac{4}{7}$
97. $\frac{1}{4}$
98. $y = -8$
99. 3 to 4
100. $\frac{7}{40}$