Name: _____ Period: _____ Date: _____ ID: A

RBC Summer Math Packet - Honors Geometry - This WILL NOT be collected however you will be tested on its contents in September.

What is the solution of the equation?

1. $\frac{6}{7}x - 8 = 7$
2. $4.7x + 3.8 = 13.2$
3. $16 = \frac{-5 + z}{4}$
4. $\frac{b + 6}{5} = 10$
5. $2 = 6p - 8 - 5p$
6. $5d - d - 2d + 8 - 3d = 0$
7. $4(y + 2) = 32$
8. $3(y - 5) + 2 = 5$
9. $70 = -7(-2 - 2z)$
10. $\frac{4p}{6} + 27 = 39$
11. $2.4x + 2.6 = 17$
12. $6x - 3 = 5x - 5$
13. $-4x - 9 = -5 - 6x$

____ 14. $2(h - 8) - h = h - 16$

a. 8 b. –8 c. infinitely many solutions d. no solution

____ 15. $2 + 3z = 5 + 3z$

a. $-\frac{1}{2}$ b. infinitely many solutions c. no solution d. $2\frac{1}{3}$

16. Aimi is making Valentine's Day cards for everyone in her class. She plans to use a whole sheet of paper for each of her 6 closest friends. She will use $\frac{1}{8}$ of a sheet of paper for everyone else in the class. She has 34 sheets of paper. How many of the smaller cards can she make?

17. John and 2 friends are going out for pizza for lunch. They split one pizza and 3 large drinks. The pizza cost $12.00. They spend a total of $16.95. Find the cost of one large drink.

What are the solutions of the inequality? Graph the solution.

18. $-\frac{x}{4} \leq 2$

19. $-\frac{2}{5}x - 9 < \frac{9}{10}$

20. $4x + 6 < -6$

21. $p + 4 - 2(p - 10) > 0$

What are the solutions of the inequality?

____ 22. $-2(3x + 2) \geq -6x - 4$
a. $x \geq 0$ b. $x \leq 6$ c. all real numbers d. no solution

____ 23. $10x - 10 - 7x \geq 3x - 2$
a. $x \geq -8$ b. $x \leq 8$ c. all real numbers d. no solution

What is the slope of the line that passes through the pair of points?

24. (1, 7), (10, 1)

25. $(-\frac{5}{3}, -1), (-2, \frac{9}{2})$

Does the equation represent a direct variation? If so, find the constant of variation.

26. $5x = -3y$

27. $2x - 4y = 0$

28. $2x^2 + 4y = 0$

29. Suppose y varies directly with x, and $y = 8$ when $x = -6$. What direct variation equation relates x and y? What is the value of y when $x = -2$?

What are the slope and *y*-intercept of the graph of the given equation?

30. $y = -4x + 2$

31. $y = \frac{8}{9}x - \frac{10}{3}$

Write an equation of a line with the given slope and *y*-intercept.

32. $m = \frac{3}{5}, b = \frac{1}{3}$

What equation in slope intercept form represents the line that passes through the two points?

33. (2, 5), (9, 2)

34. $(-\frac{3}{4}, -\frac{10}{3}), (-\frac{2}{3}, -\frac{1}{3})$

Write an equation in slope intercept form for the line through the given point with the given slope.

35. $(8, 3)$; $m = 6$

36. $(-10, -6)$; $m = -\frac{5}{8}$

Find the *x*- and *y*-intercept of the line.

37. $-4x + 2y = 24$

What is the graph of the equation?

38. $y = -2$

39. $x = 1$

40. Write $y = \frac{1}{6}x + 5$ in standard form using integers.

Write an equation for the line that is parallel to the given line and passes through the given point.

41. $y = 5x + 8$; $(2, 16)$

42. $y = \frac{3}{5}x - 8$; $(-15, -23)$

Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

43. $y = -\frac{1}{6}x - 5$
$24x - 4y = 12$

44. $y = -\frac{1}{2}x - 12$
$-6x - 12y = 21$

Write the equation of a line that is perpendicular to the given line and that passes through the given point.

45. $x + 3y = 16$; $(-3, -4)$

46. $y = \frac{7}{8}x - \frac{3}{2}$; $(-4, 2)$

Solve the system.

47. $8x - 2y = 10$
$3x - y = 9$

48. $x + 3y = 13$
$5x + 6y = 38$

49. $3x = -18 + 4y$
$16y = 58 + 5x$

How many solutions does the system have?

____ 50. $x = -4y + 4$
$2x + 8y = 8$
a. one solution b. two solutions c. infinitely many solutions d. no solution

____ 51. $y = 6x + 2$
$3y - 18x = 12$
a. one solution b. two solutions c. infinitely many solutions d. no solution

Which ordered pair is a solution of the inequality?

____ 52. $2y + 6 < 8x$
a. (4, 13) b. (–5, 2) c. (0, 6) d. (4, 8)

Graph the inequality.

53. $3x - 7y < -21$

54. $y > -5x + 3$

What is the simplified form of each expression?

55. $-(4)^{-2}$

56. $(-3)^{-2}$

57. $8g^{-2}d^{6}$

58. $\dfrac{3}{a^{-9}b}$

59. $2b^{-1} \cdot 5b^{10}$

60. $x^{8} \cdot 2y^{10} \cdot 5x^{5}$

____ 61. $9^{\frac{5}{2}}$
a. 45 b. 243 c. 18 d. 9

____ 62. $256^{\frac{1}{4}}$
a. 4 b. 256^4 c. 256 d. 1024

63. $m^7\left(m^2\right)^{-9}$

64. $k^3\left(k^{\frac{7}{5}}\right)^{-5}$

65. $(-5g^4h^6)^2(g^5h^5)^5$

66. $\frac{c^9d^{-7}}{c^{14}d^{-10}}$

67. $\left(\frac{3x^5}{8j^4}\right)^{-3}$

____ 68. Does the rule $y = -3 \cdot 2^x$ represent a linear or an exponential function?
a. exponential b. linear

Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.

69. $4g - 5g^3 + 9g^2 - 6$

Solve the equation. Check your solution.

70. $\sqrt{a+6} = 11$

Simplify the expression.

71. $\sqrt{6}\left(\sqrt{33}+7\right)$

72. $(9-\sqrt{7})(9+\sqrt{7})$

73. $5\sqrt{2}+\sqrt{18}$

74. $4\sqrt{6}+5\sqrt{6}$

75. $8p(-3p^2+6p-2)$

76. $(4w^2-7w-6)-(8w^2+2w-3)$

77. $\sqrt{\frac{10}{121}}$

Simplify the radical expression by rationalizing the denominator.

78. $\frac{3}{\sqrt{11}}$

What are the solutions of the equation?

79. $20x^2 - 11x - 4 = 0$

80. $x^2 + 3x = 18$

81. $3z^2 + 3z - 6 = 0$

Solve the equation using square roots.

82. $4x^2 + 65 = 81$

83. $2x^2 - 98 = 0$

What is the factored form of the expression? Factor completely.

84. $15g^3 + 18g^2 - 10g - 12$

85. $k^2 - 9h^2$

86. $s^4 - 16$

87. $d^2 - 20d + 100$

88. $3x^2 + 8x - 16$

89. $56k^3 - 84k^2 + 70k - 105$

90. $10x^2 + 31x + 15$

91. $x^2 - 6xy - 40y^2$

92. $8x^2 + 18x + 9$

93. $d^2 + 16d + 63$

94. $d^2 - 14d + 45$

95. $25w^6 + 35w^3$

What is a simpler form of the following expressions?

96. $(4p - 8)(4p + 8)$

97. $(4x - 6y^3)^2$

98. $(7m + 5)^2$

99. $(4k + 5)(3k^2 - 4k - 4)$

100. $(3x + 4)(2x - 6)$

101. $(2n^2 + 5n + 3)(4n - 5)$

102. $(-4h + 2)(3h + 7)$

103. $(3h - 7)(3h - 6)$

Find the GCF of the terms of the polynomial.

104. $26x^2 + 34x^4$

What is the solution of the proportion?

____ 105. $\frac{14}{12} = \frac{d}{48}$

a. 56 b. 672 c. 168 d. 576

____ 106. $\frac{h}{-8} = \frac{19}{-2}$

a. 76 b. –152 c. –38 d. 16

107. $\frac{13}{y} = \frac{3}{8}$

108. $\frac{10}{8} = \frac{25}{x}$

109. $\frac{w + 14}{4w + 6} = \frac{3}{4}$

110. $\frac{x - 8}{5} = \frac{2}{4}$