End of 7th Grade with Mrs. Cochran, Entering 8th Grade
Summer Assignment 2023

Due Date: Thursday September 7, 2023

Objective: Students will practice and expand upon previously learned skills in preparation for more rigorous Geometry Content.

Overview of Instructions: Complete each problem in the space provided. In order to receive credit for this assignment, you must show work for each problem when applicable. NO CALCULATORS SHOULD BE USED. If necessary, you may work on a separate sheet of paper, but the additional pages with your work must be turned in with your assignment. Once you have completed a problem, transfer your answer to the answer page.

When you return in September, you are expected to hand in your completed Summer Math Packet by Thursday, September 7. On Tuesday, September 12, you will be given a quiz covering the topics from the Summer Math Packet.

Grading: Summer Math Packet – Due Thursday, September 7, 2023

Summer Math Packet Quiz - Tuesday, September 12, 2023

Additional Resources: The material is a review of Algebra topics; the topics will not be re-taught in 8th grade. If you have difficulty with anything in the assignment, try searching the following sites for tutorials/videos/examples of problems: bigideasmath.com, khanacademy.com, coolmath.com, purplemath.com, math antics.com, mathwarehouse.com, etc. You can also Google it, of course! We encourage you to form study groups to work collaboratively with your peers to successfully complete the assignment.

Please do not call the office for a copy of the summer assignment as they will not have one. The packet has been posted to the Summer Math Assignments 2023 Google Classroom as well as the HTS website.

See you in September!!

Name_____ Summer 2023

Algebra 1 Cumulative Review, chapters 1-11

Solve the equation, if possible.

1. $x + 3x + 4(x + 1) = 6(x - 1) + x$

2. $4|6y - 3| + 6 = 2$

Solve the inequality, if possible.

3. $|7h + 14| \geq 28$

4. $5 \geq -2(x + 1) - 3$

5. $4|3x + 9| + 2 > 14$

Write the equation of the line in slope-intercept form that passes through the given point and is parallel to the given line.

11. $(-2, 4); y = 2x + 9$

12. $(8, 0); y + 2 = -\frac{1}{4}(x + 9)$

13. $(-8, -12); 18x - 9y = 27$

Solve the system of linear equations by graphing, substitution, or elimination.

14. $-x + 2y = 5$
$4x + 6y = -6$

15. $2x + 4y = -4$
$4x + 2y = 16$

16. $11x + 2y = 30$
$4x + y = 9$

Simplify the expression. Write your answer using only positive exponents.

18. $\dfrac{5^2 x^{-2} y^{-9} z^5}{10^2 x^7 y^{-8} z^6}$

19. $\dfrac{343m^{-10}}{49m^{-13}}$

20. $\dfrac{x^4 y^5 z^{-51}}{x^5 y^4 z^{-52}}$

Solve the equation. Check your solution.

21. $11^{2x+7} = 11^9$

22. $4^{3x+7} = 4^{x+9}$

23. $5^{9x} = 25^{4x+2}$

Factor the polynomial.

28. $m^2 - 8m - 20$

29. $z^2 + 11z - 42$

30. $3w^2 + 27w + 60$

31. A boulder is launched from the top of a tall cliff. The distance d (in feet) between the boulder and the ground t seconds after it is launched is given by $d = -16t^2 - 96t + 144$. Approximately how long after the boulder is launched does it hit the ground? Give your answer to two decimal places.

Solve the equation.

32. $z^2 - 1 = 0$

33. $y^2 + 20y + 100 = 0$

Factor the polynomial completely.

34. $2x^3 - 2x^2 - 5x + 5$

35. $10y^3 - 15y^2 - 4y + 6$

39. The function $f(t) = -16t^2 + s_0$ represents the approximate height (in feet) of an object falling t seconds after it is dropped from an initial height s_0 (in feet). A tomato is dropped from a height of 1296 feet. After how many seconds does the tomato hit the ground?

Simplify the expressions.

47. $\sqrt[3]{\frac{125x^7}{54y^4}}$

48. $\frac{8}{5 + \sqrt{7}}$

49. $-3\sqrt{3} - \sqrt{8} - 3\sqrt{3}$

Solve the equation using square roots.

52. $2x^2 = 50$

53. $3x^2 = 3$

54. $2x^2 + 2 = 100$

Solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

55. $x^2 + 13x + 22 = 7$

56. $5y^2 - 21 = 10y$

Solve the equation using the Quadratic Formula. Round your solutions to the nearest tenth, if necessary.

58. $9x^2 - 7x - 4 = 0$

59. $y^2 + 2y - 1 = 2$

Describe the domain of the function.

64. $y = 2\sqrt{x}$

65. $y = \sqrt{x + 9}$

66. $f(x) = 3\sqrt{-x - 3}$

67. $y = \frac{1}{3}\sqrt{5x}$

68. $f(x) = \sqrt{\frac{1}{3}x} - 4$

69. $g(x) = \frac{3}{4}\sqrt{-x + 5}$

Describe the range of the function.

70. $f(x) = \sqrt{x} + 2$

71. $f(x) = \sqrt{x - 3}$

72. $h(x) = 2\sqrt{x}$

Solve the equation. Check your solution.

79. $\sqrt{x} = 5$

80. $\sqrt{x} - 4 = 2$

81. $5 - \sqrt{y} = -2$

82. $\sqrt{w - 2} + 4 = 7$

83. $2\sqrt{r - 2} = 20$

84. $-3 = \sqrt{4x + 12} - 7$

85. $\sqrt{5x - 8} = \sqrt{x}$

86. $\sqrt{7x + 5} = \sqrt{4x + 17}$

Find the inverse of the relation.

87.

Input	−2	−1	0	1	2	3	4
Output	6	5	4	3	2	1	0

Find the inverse, $g(x)$ of the given function.

89. $f(x) = 3x + 10$

90. $f(x) = \frac{1}{5}x + 2$

91. $f(x) = x^2 + 2, x \geq 0$

Find the vertical and horizontal asymptotes if any, and the domain and range.

92. $y = -\frac{2}{x}$

93. $y = -3^x$

94. $y = \frac{1}{x} + 3$

95. $y = \frac{1}{x - 1} + 2$

96. $y = \frac{1}{3}x + \frac{2}{3}$

97. The variable *y* varies inversely with *x*. When x = -4 and y = 18. Write an inverse variation equation that relates *x* and *y*.

Simplify. State excluded values, if any.

98. $\dfrac{a^3 \cdot a^{-1}}{a^6 \cdot a^{-2}}$

99. $\dfrac{20t^2}{t^2 + 4t + 4} \cdot \dfrac{2t^2 + 4t}{15t}$

100. $(7c + 1)^2$

101. $\dfrac{9x^2 - 1}{3x + 1}$

102. $\dfrac{2p^2 + 7p + 3}{p^2 - p - 12}$

103. $u^2(3u + 1)(5u - 4)$

104. $\dfrac{t^2 + 6t + 5}{2t - 1} \div \dfrac{t + 1}{2t^2 + 5t - 3}$

105. $\dfrac{f^2 - 3f}{f^2} \div (f^3 - 9f)$

106. $\dfrac{21m^5}{14m^8}$

107. $(3h^2 + 2h - 1) \div (h + 2)$

Name:

1.	2.
3.	4.
5.	11.
12.	13.
16.	18.
19.	20.
21.	22.
23.	28.
29.	30.
31.	32.
33.	34.

35.	39.
47.	48.
49.	52.
53.	54.
55.	56.
58.	59.
64.	65.
66.	67.
68.	69.
70.	71.
72.	79.
80.	81.
82.	83.

84.	85.
86.	87.
89.	90.
91.	92. domain: _____ range: _____ vertical: _____; horizontal: _____
93. domain: _____ range: _____ vertical: _____; horizontal: _____	94. domain: _____ range: _____ vertical: _____; horizontal: _____
95. domain: _____ range: _____ vertical: _____; horizontal: _____	96. domain: _____ range: _____ vertical: _____; horizontal: _____
97.	98.
99.	100.

101.	102.
103.	104.
105.	106.
107.	