Augusta Christian Schools

HONORS ALGEBRA 2

Summer Work

Mrs. Stephanie Kellogg

Please follow all the instructions. Failure to follow all directions will result in a zero on this assignment.

1. You must show all of your work for each problem and circle your answers.
2. You must write all work neatly in the space provided for each problem.
3. You may not turn in any additional paper.
4. You may not use a calculator.
5. You may not google or use any other math-based software.
6. Use only your brain and a pencil.
7. At the end of the assignment, please rate the difficulty level and sign the printed statement.
8. Be sure your name is on the assignment.
9. Turn the assignment in to Mrs. Kellogg at **orientation**.

Student's Name: _____

Honors Algebra 2 Summer Work

1. A _____ is a symbol, most often a letter, used to represent a number.
2. A numerical _____ only contains numbers.
3. Write an example of an algebraic expression. _____
4. When you find the sum of two positive numbers, what sign will it have? _____
5. When you find the sum of two negative numbers, what sign will it have? _____
6. When you find the sum of one positive and one negative number, how do you determine its sign?

   _____
7. When you add two numbers that are opposites, what is the result*?* _____
8. When you multiply two negative numbers, what sign will the product have? _____
9. When you multiply a negative number by a positive number, what is the sign of the product?_____
10. What are consecutive integers? _____
11. $5(x + 2) = 5x + 10$ is an example of the _____ property being used.
12. The example $x^2 \bullet x^5 = x^7$ shows the rule of exponents for Products of Powers. This rule states that to multiply two powers having the same base, you must _____the exponents.
13. The example $\left(a^3\right)^4 = a^{12}$ shows the rule of exponents for a Power of a Power. This rule states that to find the power of a power, you must _____ the exponents.
14. A number is _____ if its only factors are one and itself.

Translate the verbal phrases below into the appropriate variable expression or equation.

_____ 15. The difference between a number *x* and three is twenty-one.

_____16. The product of three and two more than a number is twelve.

_____17. Twice the sum of a number and three

_____18. Three decreased by two times a number is 15.

_____19. Six less than a number.

_____20. Five plus the quotient of a number and 8.

Perform the indicated operation.

21. $-12-(-65)$

22. $-7(-12)$

23. $|10|+|-4|$

24. $\frac{4}{7}+\left(-\frac{11}{7}\right)$

25. $-\frac{2}{15}+\frac{3}{5}$

26. $\frac{1}{7}+\frac{14}{5}$

27. $\frac{3}{5}-\frac{7}{2}$

28. $-\frac{2}{9}-\left(-\frac{5}{9}\right)$

29. $\frac{3}{8}-\frac{11}{16}$

30. $\frac{4}{7}\cdot\frac{5}{12}$

31. $-\frac{18}{35}\cdot\frac{7}{16}$

32. $-\frac{1}{6}\cdot\left(-\frac{18}{19}\right)$

33. $\frac{4}{5}\div\frac{9}{10}$

34. $-\frac{4}{9}\div\frac{8}{11}$

35. $-\frac{1}{4}\div\left(-\frac{9}{16}\right)$

Evaluate when $x=4$, $y=-12$, and $z=-3$.

36. xy

37. $y-x$

38. $\frac{y}{z}$

39. $-\frac{x}{y}-\frac{z}{x}+\frac{3}{4}$

40. $-x^2+y^2-z^3$

41. $-|z|-|x+y|$

Use order of operations to evaluate each expression.

42. $7 + 6 \cdot 2 - 10 \div 2$

43. $3^3 - 5 \cdot 9 + 6 - 29$

44. $2^3 - 16 + 4 \cdot 8 - |12|$

45. $[(53 - 2^2) \div (2 + 5)]^2$

46. $4^2 + 6 \div 3 \cdot 2^4 - |-18|$

47. $5 - [2 - (7 - 5 \cdot 2)]$

Simplify each expression.

48. $(2x^2 + 3x - 8) + (5x^2 - 9x + 2)$

49. $(7a^2 - 9b^2) + (3a^2 + 4ab + 7b^2)$

50. $(5a^3 - b) - (4a^3 + 2b)$

51. $(2a^3b + ab - 4b^3) - (5a^3b + 3ab - 4b^3)$

52. $6a^2b \cdot 9ab^2$

53. $(8a^2b)(4ab^3)$

54. $(2a^3b)^2$

55. $(\frac{2x}{y})^3$

56. $5x^2 \cdot 3x^3 \cdot 2x^0$

57. $(7x^4)^0$

58. $3a^2(2a + 4x - 9)$

59. $5xy^2(x^2y^3 - 14xy)$

Solve each equation. Check your solution.

60. $x + 13.2 = 21.6$

61. $x - \frac{2}{3} = \frac{3}{4}$

62. $3x + 9 = 3$

63. $-3m + 7 = 31$

64. $3y + 4 = -140 - 9y$

65. $6a + 9 - 3a = a + 3 - 4a$

66. $5z - 8 + 3(z + 4) = -36$

67. $2(n + 4) - 5(3n - 7) = -113$

Solve each inequality and graph the solution on a number line.

68. $2x + 3 > 4x - 7$

69. $2x - 7 > 8x + 11$

70. $2(x - 1) \geq 2x + 4$

71. $4x + 1 \geq x - \frac{1}{2}$

72. $5x - 9 \neq -2x - 16$

73. $2(3x + 1) - 6x \geq -\frac{1}{2}$

74. $-7x + 3(2x - 4) < 5x - 36$

75. $5b + 3(b - 1) + 19 \geq 12b$

Solve each compound inequality and graph the solution on a number line.

76. $5x + 9 \leq 2$ and $x + 6 > 12$

77. $3x - 8 \leq 7$ or $2x + 5 > 7$

Solve each absolute value equation.

78. $|y| = 4$

79. $|6x - 16| = 8$

80. $|3x - 11| = \quad - 5$

81. $|7a - 7| - 6 = 22$

Solve each absolute value inequality and graph the solution on a number line.

82. $|5x - 12| < 3$

83. $|3y + 4| > 1$

On a scale from 1 to 10 (1 being extremely easy and 10 being extremely difficult), how difficult was this assignment? _____

Statement: "I did this work on my own and did not copy answers from any source."

Signed: _____