2021-2022

Bishop Kelley High School

Summer Math Program

Course: Algebra 1A Fall or Spring

NAME: _____

DIRECTIONS:

- **Show all work neatly in the packet. <mark>You may not use a calculator for the math packet</mark>** but you do need to purchase a TI-30X IIS calculator for the course.   The TI-30X IIS calculator is the ONLY calculator allowed for the course
- **<mark>Work MUST be shown in packet</mark>**
- **Turn this into your math teacher on the 1st day of math class.**
- This material will be graded, and points awarded at the discretion of each teacher.
- A test on this material will be administered during the first week of the class.
- An additional resource for help with this packet is http://www.khanacademy.org. It provides videos of about 10 minutes in length on hundreds of different math topics.
- If you have any questions, please contact Mrs. Bachman at rbachman@bishopkelley.org.

Name_____

Students entering Algebra 1 will be required to have a calculator for some portion of the course. <mark>**Students are only allowed to use the Texas Instrument TI-30X IIS calculator for this course—NO OTHER CALCULATOR WILL BE ALLOWED!!!!!**</mark> **It comes in many colors and you may purchase whatever color you want. Please consider purchasing the calculator in late July when they are on sale (for about $9 or $10) and in great supply.**

Directions: Use a pencil and SHOW ALL work!! <mark>**Calculators are not permitted**</mark> **on this packet**.

ORDER OF OPERATIONS:

1. Do operations that occur within grouping symbols (parentheses, brackets, absolute value bars, radicals).
2. Evaluate powers if there are any.
3. Then do multiplications and divisions **as you see them, in order, from left to right**.
4. Finally, do additions and subtractions **as you see them, in order, from left to right**.

EXAMPLES:

$16 + 4 \div 2 - 3$ Since there are no grouping symbols or exponents, do the division first
$16 + 2 - 3$ From left to right, do the addition next
$18 - 3$
15

$10 - 6\left[(7-4)^2 + 3\right] + 2(-1)^2$ Since there are grouping symbols, do inside them first.
$10 - 6\left[3^2 + 3\right] + 2(-1)^2$ Next do the powers
$10 - 6[9 + 3] + 2(1)$ Now do inside the brackets
$10 - 6(12) + 2(1)$ Time to multiply
$10 - 72 + 2$ From left to right, do the subtraction
$-62 + 2$
-60

Simplify each expression. (This will require order of operations)

1. $2 + 3 \bullet 8 \div 6$

2. $32 \div 2 \bullet 8 + 6$

3. $5 + 12 \bullet 3$

4. $30 - 4^2 + (3 + 2)$

5. $(12 - 7)^2 \bullet 3 - 6$

6. $8^2 \div 8 + 6 \bullet 3$

Evaluate when $x = 3,\, y = 1,\, \& z = 2$

7. $12(z - y)^2$

8. $3 + [(13 - x) \cdot 18]$

9. $\dfrac{y}{z + 3y}$

Write the mixed number as an improper fraction.

10. $7\dfrac{2}{9}$

Write as a mixed number.

11. $\dfrac{43}{9}$

Evaluate. Express answer in simplest form.

12. $\dfrac{2}{9} + \dfrac{4}{9}$

13. $\dfrac{2}{3} + \dfrac{3}{5}$

14. $\dfrac{3}{4} + \dfrac{1}{3} + \dfrac{5}{6}$

15. $3\dfrac{3}{10} + 8\dfrac{1}{5}$

16. $1\dfrac{1}{9} - \dfrac{1}{3}$

17. $\dfrac{5}{9} - \dfrac{1}{4}$

18. $-\dfrac{4}{5} \cdot (20)$

19. $\left(-\dfrac{2}{9}\right)\left(-\dfrac{3}{8}\right)$

20. $\left(3\dfrac{1}{2}\right) \cdot \left(1\dfrac{6}{7}\right)$

21. $\dfrac{8}{9} \div \dfrac{6}{36}$

22. $1\dfrac{2}{5} \div 2\dfrac{5}{7}$

23. $10 \div 3\dfrac{1}{3}$

24. $9.18 + 6.45$ **25.** $0.9 + 15.67$ **26.** $3.8 + 12.45 + 37.08$ **27.** $8.3 - 3.58$

Evaluate. Express fractional answers in simplest form.

28. $(3.2)(7.4)$ **29.** $(-3.2)(-7.16)$ **30.** $3.2 \div 8$

31. $480 \div .006$ **32.** $\dfrac{-48}{12}$ **33.** $\dfrac{-3\frac{1}{2}}{-4}$

Evaluate.

35. $12 - 18$ **35.** $(-17) - 12$ **36.** $(-8) - (-6)$

37. $(-14) + (-3)$ **38.** $(-7) + 11$ **39.** $9 + (-5)$

Write each percent as a decimal.

40. 54% **41.** 3% **42.** 250%

Write each percent as fraction in simplest form.

43. 64% **44.** 20%

Write each fraction as a percent.

45. $\dfrac{3}{10}$ **46.** $\dfrac{17}{25}$

Solve. You <u>may use a calculator</u> for these 4 problems but you must write an equation. (Do NOT just put an answer)

47. What number is 5% of 186?

48. What number is 75% of 192?

49. What percent of 25 is 20?

50. 25% of what number is 6?

<u>COMBINING LIKE TERMS:</u>

Like terms have the same variables and the same exponents. You can add and subtract like terms by combining the coefficients (the numbers in front) and leaving the variables the same.

EXAMPLES:

$$2(x+5)-3(2x-7)$$
$$= 2x+10-6x+21$$
$$= -4x+31$$

$$-3(2a+4b)-(3a-2b)$$
$$= -6a-12b-3a+2b$$
$$= -9a-10b$$

Simplify. Use the distributive property when necessary.

51. $2x+7+8x-12$

52. $18a-12b+a-15b$

53. $c-2d-10c+8d$

54. $2(8-5g)+6(3+2g)$

55. $(3r-2v)-4(r-5v)$

56. $-2(3x-9)-(3x-12)$

57. $3(2a-4b)+(4a-6b)-(9a-3b)$

58. $3(2c+5d)-5(8c-2d)$

Solve. (Make sure you show work and not just an answer!)

59. $x - 6 = -13$

60. $a + 18 = 2$

61. $c - (-2) = -32$

62. $-7n = 56$

63. $\dfrac{n}{5} = -20$

64. $12 - x = 5$

65. $3n - 2 = 10$

66. $\dfrac{a}{3} - 4 = 8$

67. $\dfrac{n}{2} = 3\dfrac{1}{4}$

68. $-7x + 2 + 5x = -3x + 7$

69. $-4(5x - 2) = -12x + 4 - 8x + 4$

70. $\dfrac{1}{7}(2x - 5) = \dfrac{2}{7}x + 1$

Write an equation for each sentence. Use n for the variable. (You do NOT have to solve)

71. Half of a number increased by six is 12.

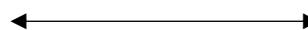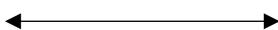**72. Four less than three times a number is 29.**

73. The quotient of a number and 6 is two-thirds of the number.

Solve and graph each inequality (use the number line provided on the answer sheet)

74. $2x < -14$ **75.** $r - 8 \geq -10$ **76.** $-3x \geq 12$

Given the following points, calculate the slope of the line that runs through the 2 points.

77. $(2, -3) \text{ and} (6, 2)$ **78.** $(-1, 5) and ((6, -2)$

Word Problems. Show all work.

79. Michael scores a 95, 87, 85, 93 and a 94 on his first 5 math tests. If he wants a 90 average, what must he score on the final math test?

80. If Tyler wants to drive to his friends house that is 450 miles away in 6 hours, what average speed should he drive at?

Evaluate each expression.

81. 3^2

82. -4^3

83. $\left(\dfrac{1}{5}\right)^3$

84. $x^2 \bullet x^5$

85. $2x^4 \bullet 6x^3$