Honors Algebra I Summer Packet

Name_____

Most of the problems in this packet represent the types of problems you should have worked with in the past and mastered. It will be expected that you know how to work all the material found in this packet when school resumes in August.

Instructions:

- **Please work all problems on loose leaf paper with a # 2 pencil. Do not use ink.**
- **Please show work.**
- **DO NOT use a calculator.**
- **Write neatly.**
- **Follow all directions to each set of problems. There should be no decimal answers unless the problem has decimals in it.**
- **This work is independent work. However, you may enlist the help of family, friends or you-tube videos.**
- **You will submit this packet to your algebra teacher on the first full day of class in August. DUE: Wednesday, August 11, 2021**
- **You will have a quiz on this material on Friday, August 13, 2021.**

Simplify each expression. Copy the problem and show all steps. Remember: NO CALCULATOR

1] $-7+6+[-(2-3)]$

2] $15\left(1\frac{1}{5}\right)$

3] $24\left(\frac{1}{3}+\frac{1}{8}\right)$

4] $3+8x+11$

5] $18t-(-6)t$

6] $5e+8f+(-2)e-12f$

7] $-6(a+b)+9(a-b)$

8] $-4.29\div-0.3$

9] $25\div5\cdot5-6+2$

10] $\frac{-5a}{7}(-7)$

11] $-8(3m-n)$

12] $3(m+n)-5(2m-n)$

13] $\frac{9\cdot3-4^2}{3^2+2^2}$

14] $25-\frac{1}{3}(18+9)$

15] $|-5|$

16] $|-8+2|$

17] $-|-2+1|$

18] $|-9-8|-|-6|$

Evaluate each expression if $a=-2, b=3, c=6$, and $d=\frac{1}{3}$. Copy the problem and show your substitution.

19] $\frac{a-b}{d}$

20] $-a(b+c)$

21] $d(a+b)$

22] $\frac{a-b+3d}{d}$

23] $b-a^2$

24] $(b-a)^2$

25] ab^2

26] $-(b-c)^2$

27] $cd-b-a$

Write an algebraic expression for each verbal expression. Use x as the variable.

28] a number increased by seventeen

29] the product of five and a number

30] twice the cube of a number

31] one-half the square of a number

32] the quotient of a number and two

33] three-fourths of a number decreased by one

34] the difference of a number and eight

35] the sum of a number and twelve

36] five less than a number

37] twice the difference of a number and two

Simplify each expression. Copy the problems.

38] $a^2\cdot a^3$

39] $(-5a^2)(-7a)$

40] $(x^3)^2$

41] $\frac{y^5}{y^8}$

42] $\frac{4xy^2}{12x^2y}$

43] $\frac{5x}{y^2}\cdot\frac{3y}{10x}$

44] $\left(\frac{2}{3}\right)^2$

45] $(5y^2+3y-4)+8(2y^2+5)$

46] $-4x^2(3x^3-7x+1)$

47] $(2x-3)(x+1)$

48] $(4x-5)(3x-2)$

49] $(5x-2)^2$

50] $(2x+3)^2$

51] $x(4x-5)(3x^2)$

52] $(3x^3)^2$

Find each sum or difference in simplest form. Copy the problems. Remember: NO CALCULATOR.

53] $12\frac{3}{8} - 7\frac{1}{2}$

54] $-2\frac{5}{8} + 7\frac{1}{4}$

55] $-8 + 5\frac{3}{4}$

56] $2.36 + 1.9$

57] $12 - 1.3$

58] $-18.5 - 1.62$

Find each product or quotient in simplest form. Copy the problems. Remember: NO CALCULATOR.

59] $1\frac{7}{8} \cdot 2\frac{1}{5}$

60] $-\frac{2}{3} \cdot \frac{5}{4}$

61] $\frac{1}{4}(12) \div \frac{1}{3}$

62] $8\frac{2}{3} \div 1\frac{1}{9}$

63] $-1\frac{1}{3} \div -1\frac{5}{7}$

64] $5 \div \frac{1}{4} \div \frac{1}{2}$

DO NOT use a calculator to answer the following problems about percentages. Copy the problems and show what method you used.

Express each fraction as a percent.

65] $\frac{7}{20}$

66] $5\frac{1}{4}$

67] $\frac{1}{8}$

Express each percent: a. as a fraction in lowest terms b. as a decimal.

68] 65%

69] $8\frac{1}{2}\%$

70] 125%

Copy all problems and show your work.

71] Find 18% of 200.

72] 14 is 20% of what number?

73] 30 is what percent of 120?

Solve each equation. Show every step.

74] $6x + 5 = 8x - 4$

75] $\frac{3y - 5}{2} = -6$

76] $\frac{1}{3}x = 5$

77] $\frac{1}{2}(7y + 6) = -4$

78] $3(x - 6) + 2x = 37$

79] $2x - 3(x + 1) = -(5x + 3) + x$

80] $\frac{1}{4}x + \frac{7}{2} = -\frac{5}{8}x$

81] $\frac{2}{3}x - 8 = 16$

82] $\frac{x}{4} = \frac{3}{2}$

83] $\frac{6x - 1}{12} = \frac{x}{30}$

84] $0.3x - 5.6 = 0.02x$

85] $\frac{1}{3}(12 - 6x) = 4 - 2x$

Solve and graph each inequality on a number line.

86] $5g - 8 \leq 17$ 87] $y - 14 \leq 3y + 8$ 88] $-3d + 6 < d - 4$

Order the numbers from *least to greatest.*

89] $\frac{1}{2}, 0.2, 0.25$ 90] $3\frac{39}{40}, 3\frac{19}{20}, 3\frac{1}{2}$

For each problem:

a) **Define your variable. EX: $x =$ number of girls or $h =$ total hours.**
b) **Write and equation that models the problem.**
c) **Solve the equation and label the answer.**
Show all computation on your paper. DO NOT use scratch paper.

Example: There were three more girls than boys in the class. There were a total of 21 students. How many boys were in the class?

$x =$ number of boys
$x + 3 =$ number of girls
$x + x + 3 = 21$
$2x + 3 = 21$
$2x = 21 - 3$
$2x = 18$
$\frac{2x}{2} = \frac{18}{2}$
$x = 9$ $x + 3 = 12$ There are 12 girls in the class

91] Jay has saved three times as much money as Sue. Together they have saved $252. How much does each have?

92] The sum of 75 and twice a number is 219. Find the number.

93] Find a number whose product with 7 *is the same as* its sum with 24.

94] The sum of three consecutive integers is 126. Find the integers

95] The sum of three consecutive even integers is -30. Find the smallest integer.

96] The perimeter of a rectangle is 264 inches, and the length is 72 inches. Find the width. (*hint: the equation is the formula for perimeter)*

97] Adult tickets for a concert were $5 each and student tickets were $2 each. A total of 980 tickets, worth $3460, were sold. How many adult tickets were sold? (*hint: if x = number of adult tickets, then 980-x = number of student tickets)*

98] Sara earns $6.00 more an hour than her assistant. During an 8-hour day they earn $240 together. How much does each earn per hour?