Honors Algebra I Summer Packet

Name_________________________________

Pledge on the last page of the packet.

Most of the problems in this packet represent the types of problems found in the first few chapters of your Algebra I textbook. Your Honors Algebra I course will begin with Chapter 3 in your textbook. It will be expected that you know how to work all the material found in this packet.

Instructions:

• Please show work where indicated. DO NOT use scratch paper.

• Copy all problems except # 91 – 98.

• Please work all problems on loose leaf paper with a # 2 pencil. Do not use ink.

• DO NOT use a calculator.

• Write neatly.

• Follow all directions for 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 a tutor on concepts, but not specific problems in this packet. Having someone help you with the specific problems in this packet will be considered an Honor Council violation.

• You will submit this packet to your algebra teacher on the first day of class.

• You will be tested on this material after the first week of school.
Simplify each expression. Copy the problem and show all steps. Remember: NO CALCULATOR

1] \(-7 + 6 + [-2 - 3]\)  
2] \(15 \left( \frac{1}{5} \right) \)  
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] \(-4.29 ÷ -0.3 \)  
9] \(25 ÷ 5 \cdot 5 - 6 + 2 \)

10] \(-\frac{5a}{7}(-7)\)  
11] \(-8(3m - n)\)  
12] \(3(m + n) - 5(2m - n)\)

13] \(\frac{9 \cdot 3 - 4^2}{3^2 + 2^2}\)  
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] \( \frac{3}{8} - \frac{1}{2} \)  
54] \(-\frac{5}{8} + \frac{7}{4} \)  
55] \(-8 + \frac{3}{4} \)

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] \( \frac{7}{8} \cdot \frac{1}{5} \)  
60] \(-\frac{2}{3} \cdot \frac{5}{4} \)  
61] \(\frac{1}{4}(12) \div \frac{1}{3} \)

62] \( \frac{8}{3} \div \frac{1}{9} \)  
63] \(-\frac{1}{3} \div -1\frac{5}{7} \)  
64] \(5 \div \frac{1}{4} \div \frac{1}{2} \)

DO NOT use a calculator to answer the following problems about percent. 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: \(x = \text{number of girls}\) or \(h = \text{total hours}\)

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?

\(x = \text{number of boys}\)  
\(x + 3 = \text{number of girls}\)  
\(x + x + 3 = 21\)  
\(2x + 3 = 21\)  
\(2x = 18\)  
\(x = 9\)  
\(x + 3 = 12\)  
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 in. and the length is 72 in. 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 \(x = \text{number of adult tickets}\), then \(980-x = \text{number of student tickets}\))

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?
Please staple this page to the top of your work pages and hand in to your Honors Algebra teacher on the first day.

H. Alg Per _________ Name______________________________

Instructions: Answer the following questions by checking each box.

☐ I completed all work on loose leaf paper with a # 2 pencil.

☐ I showed work where indicated.

☐ I did not use scratch paper.

☐ I copied all the problems except # 91 – 98.

☐ I did NOT use a calculator.

☐ My handwriting is neat and legible.

☐ I followed all directions for each set of problems.

☐ I did not use decimal answers unless the problem had decimals in it.

☐ I completed the problems without help.

☐ I received help with particular concepts from __________________________

____________________________________________________________________

Pledge__________________________________________________________________

_______________________________________________________________________