Name: _____ Period: _____

Algebra 1 Readiness Packet

Signed Numbers: Simplify. Do not use a calculator.

1) $-6+(-3)$ 2) $9-15$ 3) $12-(-6)$ 4) $-9+5$

5) $18\cdot(-3)$ 6) $-8\cdot(-10)$ 7) $\frac{-35}{-5}$ 8) $\frac{27}{-3}$

Order of Operations: Simplify. Do not use a calculator.

9) $[36\div(3\cdot4)]+2$ 10) $60-7(5+6\div2)+2^4$ 11) $4+6(5-2)$

12) $2+8\cdot3^2$ 13) $24-6\cdot2$ 14) $4\cdot9+7\cdot8$

15) $14+8\div2-1$ 16) $\frac{63-8}{3+8}-2$ 17) $5\cdot\frac{19-7}{5+1}$

18) $15-[100-6(7+8)]^2$ 19) $\frac{3}{4}[10-(6-8)^2]$ 20) $(3+1)^3\div8-2$

Evaluating Expressions: Evaluate the expression without using a calculator.

21) $7a-4$ when $a=-2$ 22) $\frac{9}{2x-5}$ when $x=4$ 23) m^4 when $m=-3$

24) $8-x$ when $x=-3$ 25) $b-c+a$ when $a=-5$, $b=12$, and $c=-8$

Operations Involving Fractions: Simplify. Do not use a calculator.

26) $\frac{3}{8}+\frac{1}{4}$ 27) $6\frac{1}{2}+3\frac{1}{9}$ 28) $-5\frac{1}{3}-2\frac{1}{4}$ 29) $6+3\frac{3}{8}$

30) $2\frac{1}{6}-2\frac{7}{8}$ 31) $7\frac{1}{8}-2\frac{3}{4}$ 32) $20-8\frac{3}{4}$ 33) $\frac{5}{9}\div\frac{1}{3}$

34) $\frac{11}{12}\cdot3$ 35) $-\frac{5}{16}\cdot\left(-\frac{4}{5}\right)$ 36) $5\frac{1}{2}\cdot4\frac{3}{4}$ 37) $5\div\frac{2}{5}$

38) $-3\cdot5\frac{2}{3}$ 39) $9\frac{1}{4}\div\left(-2\frac{1}{4}\right)$ 40) $-\frac{11}{21}\cdot\frac{7}{33}$ 41) $\frac{5}{24}\div\frac{20}{27}$

Operations Involving Decimals: Simplify. Do not use a calculator.

42) $5.038+2.96$ 43) $16+1.6+0.517$ 44) $9.006-4.44$ 45) $27-10.4$

46) $6 - 10.8$ 47) $-3.25 - 5$ 48) $17.03 \div 9$ 49) $-2.45 \div 3$

50) $3.25 \div 0.5$ 51) $23.24 \div (-2.8)$ 52) $-4.8 \cdot (-6.9)$ 53) $-0.05 \cdot 0.7$

Evaluating Powers: Simplify. Do not use a calculator.

54) 3^3 55) $(-2)^4$ 56) -2^4 57) 7^0 58) 8^{-3} 59) 2^{-1}

Powers: Write #60-61 in expanded form and #62-63 in exponential form.

60) x^6 61) 5^4 62) $x \cdot x \cdot x \cdot x \cdot x \cdot x$ 63) $3 \cdot 3 \cdot 5 \cdot 5 \cdot 5$

Absolute Value: Simplify without using a calculator.

64) $|8|$ 65) $|-78|$ 66) $|8 - 17|$ 67) $|6 \cdot 4|$ 68) $|-24 \div 3|$

Distributive Property: Simplify without using a calculator.

69) $3(x + 7)$ 70) $-2(11 - y)$ 71) $\frac{1}{3}(12x - 15y)$ 72) $\frac{7(x-2d)+63}{7}$

Combining Like Terms: Simplify without using a calculator.

73) $7x + 6x + 8$ 74) $9x - 5 + 7x + 4$ 75) $7x^2 + 8x^2 - x$ 76) $3x^2 - 5x + 6 - 8x^2$

77) $3(4x + 7) - 2$ 78) $13 - 2(3x + 4)$ 79) $5(x - 3) - 2(7x + 8)$

80) $8(x + 4) - (x - 5)$ 81) $\frac{1}{2}(12x + 20) - \frac{1}{5}(30 - 15x)$ 82) $6x - 5(4x + 1)$

Solving One-Step Equations: Solve without using a calculator.

83) $x - 8 = 15$ 84) $x + 15 = 6$ 85) $8x = 2$ 86) $\frac{x}{8} = -6$

87) $-12 = x - 8$ 88) $6 + x = -5$ 89) $-1.3x = 2.6$ 90) $\frac{2}{3}x = 18$

Solving Two-Step Equations: Solve without using a calculator.

91) $2x + 3 = 19$ 92) $12 = 5x - 3$ 93) $-2 + 3x = 8$ 94) $71 = 4 - x$

95) $4.6 + 5x = -9$ 96) $\frac{1}{5}x + 3 = 7$ 97) $-\frac{4}{3} - x = -\frac{1}{3}$ 98) $\frac{3x-8}{-2} = 4$

Solving Multi-Step Equations: Solve without using a calculator.

99) $5(x + 3) - 2x = -21$ 100) $7x - 4(2 - 3x) = -27$ 101) $32 = 2(x + 3) - 5(x - 1)$

102) $5x + 27 = 2x$ 103) $5x + 8 = 7x + 8$ 104) $7(2 - x) = 3(x + 8)$

105) $7x = -16 - 9x$ 106) $4x - 2(1 + x) = 2(3x - 2)$ 107) $4(x + 3) = 6x$

Solving Equations With Decimals: Solve. You may use a calculator for this section.

108) $0.3m - 8.5 = 1 + 1.7m$ 109) $0.4a + 0.5 = 0.6a + 0.7 + 0.8a$

Solving Inequalities: Solve without using a calculator.

110) $10 + 4x < 18$ 111) $-3x + 7 \geq -11$ 112) $11x + 36 > 3x - 4$

113) $-3(x + 2) < -3$ 114) $-7x + 10 \leq -9x - 16$ 115) $x - 13 - 2x > 2$

Variable Expressions: Write an equation or inequality from the sentence.

116) 13 less than the quotient of 5 divided by a number is at most 30

117) 5 more than the product of 3 and c is 22

Word Problems: Write an equation to describe the problem and then solve.

118) Amanda is selling boxes of cookies for 25 cents per cookie plus 5 cents for the box. Let *x* be the number of cookies you buy. Write an equation describing the cost *C* for *x* cookies.

a. How much will you pay for 5 cookies? 10 cookies?

b. If you paid $4.30, how many cookies did you buy?

119) A gas tank holds 20 gallons of gas and uses $\frac{1}{10}$ of a gallon every mile. Let *x* be the number of miles driven. How many gallons are left after 120 miles?

a. At the end of a trip you find that you have 11.5 gallons left. How far did you travel?

120) Hillary is traveling to her friend's house. Her friend's house is 40 miles away. If Hillary travels at a constant rate of 30 miles per hour, how close will she be after 30 minutes?

a. How long has she been traveling if she is only 10 miles away?

Percentages: Solve. You may use a calculator in this section.

121) What is 45% of 70?

122) 30 is what percent of 60?

123) 9 is 15% of what number?

124) Andy received an 88% of his test. If the test had 25 questions, how many did Andy get right?

Proportions: Solve. You may use a calculator for this section.

125) $\frac{x}{5} = \frac{24}{15}$

126) $\frac{8}{x} = \frac{20}{17.5}$

127) $\frac{16}{21} = \frac{4}{x}$

128) In one basketball league, there are 96 players on 8 teams. In another basketball league, there are 12 teams. All of the teams in both leagues have the same number of players. How many players are in the 12-team league?

129) A car is able to get 25 miles per gallon on gasoline. The car has a 16 gallon gas tank. How many miles can the car travel if you start the trip with a full tank?

130) A flower delivery person is able to make 5 deliveries in 30 minutes. He has 3 more hours left to work today. With his remaining time on the job, how many more deliveries can he make?

Linear Equations: Write the equation in function form, create an input-output table, and graph the equation.

131) $3y = 9x + 6$

132) $5x - y = 10$

133) $10 + 2y = x$

Slope: Find the slope of the line containing the following points. Do not use a calculator.

134) $(4, 2)$ and $(-1, 3)$

135) $(-3, -8)$ and $(-1, -3)$

136) $(3, -4)$ and $(3, 12)$

Greatest Common Factor and Least Common Multiple: Find the GCF *and* LCM of each (hint: birthday cake).

137) 9, 15

138) 24, 60

139) 21, 28, 56

140) $36x^3y^3, 90xy^4$