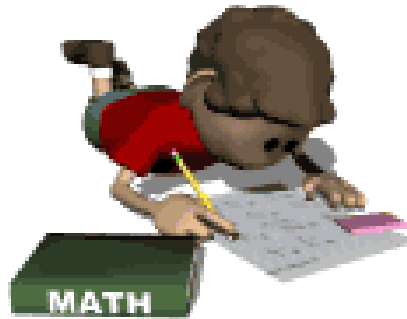


Name: _____

Algebra I: Summer Packet



Instructions:

This packet is a compilation of important mathematical concepts that you are expected to know prior to entering Algebra I. These examples focus on both mathematical skills and problem solving. You may have learned some of these concepts several years ago. Therefore, you may look back and use other resources (old notes, math books, web pages, etc.) to complete this packet. This packet should be completed independently and your parent or guardian needs to sign off on this page upon your completion of this packet. This packet will be due at the beginning of the school year. Calculators may be used, but work must be shown for full credit. Please put all answers on the sheet provided. You will be assessed on this material at the beginning of the school year.

Good luck!

Parent/Guardian Signature: _____

Summer Packet for Students Taking Algebra I

1) Evaluate $7 + 3(10 - 5) + 3 - 2 \cdot 4$

2) Evaluate $2c + 6bc - 7$ if $b=2$, $c=3$

3) Evaluate $\frac{3+2x}{y-7}$ if $x=3$, $y=10$

4) Solve for a :

$$\frac{a}{4} = 16$$

5) Write “four less than y times 6” as an algebraic expression.

6) Solve for t:

$$3t = 120$$

7) Evaluate $20 - 30 + 10 - 15$

8) Evaluate $(-4)(-2)(4)$

9) Order from least to greatest: 3, -3, 30, 0, -4

10) Evaluate $-3 + (-7)$

11) Evaluate $-3 - (-9)$

12) Evaluate $(-4)^2$

13) Combine like terms:

$$-3x + 4 + 2 + 5x - 3$$

14) James is training for a road race. Monday he ran 3 miles, Tuesday he ran 5, Wednesday he ran 7, and so on. How many miles will he run on Saturday?

15) Order from least to greatest:

$$|-2|, 0, |100|, |4|$$

16) Five friends decided to run in a 5-km run to benefit an educational association. Nancy beat Pete. Jeff was not last. Gina was beaten by Tom & Jeff. Jeff crossed the finish line just after Tom did. Tom lost to Pete. Write the correct order in which the friends finished.

17) Solve $y - 9 = -17$

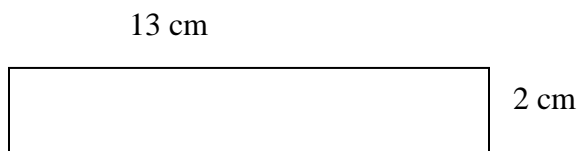
18) Solve $34 + r = 84$

19) Solve $5x = 45$

20) Solve $\frac{a}{-5} = 8$

21) Solve for the variable r . $d = rt$ $d = 20$
 $t = 3$

22) Find the perimeter and area.



P = _____

A = _____

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

23) $9x \geq -72$

24) $\frac{p}{-4} \leq 20$

25) Define a variable and translate the sentence into an equation or inequality. Then solve.

The bill for labor at \$13 per hour was at least \$52

26) State whether the number is divisible by 2, 3, 5, 6, or 10.

5050

27) Write the multiplication expression using exponents.

$$6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$$

28) Factor the number completely (factor tree)

$$81$$

29) Find the greatest common factor (GCF) of each set of numbers.

$$24, 40$$

30) Write each fraction in simplest form

$$\frac{25}{40}$$

31) Find the least common multiple (LCM) of the set of numbers.

$$2, 9$$

Find each product or quotient. Express your answer in exponential form.

32) $3^3 \times 3^2$

33) $\frac{a^{10}}{a^6}$

34) Express using positive exponents

$$3^{-3}$$

35) Express $0.\overline{5}$ as a fraction or as a mixed number.

36) Replace the \bullet with $>$, $<$, or $=$.

$$\frac{3}{4} \bullet 0.75$$

37) Estimate the difference: $11\frac{89}{100} - 4\frac{1}{7}$

38) Simplify the expression:

$$6.93 + (3.1 + 4.07)m$$

39) Evaluate the expression if $a = 5.3$, $b = 8.07$, and $x = 21.33$.

$$(x - b) + a$$

40) Solve the equation and write the solution in simplest terms.

$$-\frac{19}{30} + \frac{7}{30} = z$$

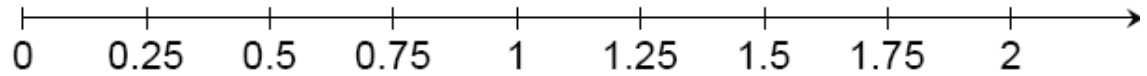
41) Simplify the expression.

$$5\frac{5}{6}y + 3\frac{5}{6}y - 2\frac{1}{6}y$$

42) The outside walls of a new home have $\frac{5}{8}$ inch drywall, $5\frac{1}{2}$ inches of insulation, $\frac{3}{4}$ inch outside wall plywood sheathing, and $\frac{7}{8}$ inch siding. How thick is the wall?

43) Solve the inequality and graph the solution on a number line.

$$a + \frac{3}{8} > 2$$



44) Study the pattern and answer the following questions:

$$11 \times 1 = 11$$

$$11 \times 2 = 22$$

$$11 \times 3 = 33$$

$$11 \times 4 = 44$$

a. If you were to continue the pattern, how would you write 11×10 ?

b. What is the actual value of 11×10 ?

c. What does the tell you about inductive reasoning? Could you use inductive reasoning to prove something else?

For the following two problems state whether each sequence is arithmetic. Then write the next three terms of each sequence.

45) 4.5, 4.0, 3.5, 3.0, ...

46) 10, 12, 15, 19, 24

47) Write $\frac{5}{11}$ as a decimal.

For the following two problems estimate the product or quotient.

48) 15.93×9.8

49) $15.2 \div 2.7$

50) Solve: $\frac{5}{12} \times \frac{2}{9}$

51) Solve: $3\frac{3}{8}(-5\frac{1}{3}) = x$

52) Solve: $p = -3\frac{3}{5} \div \frac{6}{7}$

53) $(3.9)(8.2) = ?$

54) $42 \div (-0.8) = ?$

55) Find the mean, median, and mode. If your answer is a decimal, round it to the nearest tenth.

78, 45, 32, 64, 22, 63, 45

For the following two problems, solve the equations and check your solution.

56) $6.5y = -63.7$

57) $\frac{t}{4.3} \geq 5$

58) State whether the sequence is geometric. If so, state the common ratio and list the next three terms.

24, 12, 6, 3, ...

59) Write the following numbers in scientific notation.

687,000

60) Marita put \$10 of her paycheck in savings then she spent one-half of what was left on clothes. If she spent \$50.00 on clothes, what was the amount of Marita's paycheck?

61) Solve: $\frac{c}{4} - 19 = 17$ $c = \underline{\hspace{2cm}}$

62) Five more than twice some number is 19. Find the number.

63) Find the circumference if the diameter of a circle is 8.25 cm. Round your answer to the nearest hundredth.

64) Solve for n:

$$6n - 42 = 4n \quad n = \underline{\hspace{2cm}}$$

65) The perimeter of a rectangle is 74 inches. Find the dimensions if the length is 7 inches greater than twice the width. Draw a diagram that shows this problem.

66) Solve for x.

$$7x + 29 \geq 15$$

67) Write an inequality for six times a number decreased by four is at most 41.

$$68) 4.8 \text{ km} = \underline{\hspace{2cm}} \text{ m}$$

69) 9 mm = _____ cm

70) Find four solutions, in the form of ordered pairs, for the equation $y = 2x + 1$

71) Express each ratio as a fraction in simplest form and as a decimal.

$$\frac{6}{10} =$$

$$\frac{6}{10} =$$

Express each ratio or rate as a fraction in simplest form.

72) 13 out of 169 =

73) 125:50

Express each ratio as a unit rate.

74) \$9.60 for 12 pounds

75) 27 inches of snow in 9 hours

76) What is the probability that you will roll an even number when you roll a number cube?

77) Use cross products to determine if the pair of ratios forms a proportion.

$$\frac{1}{4}, \frac{4}{16}$$

78) Solve each proportion.

$$\frac{c}{35} = \frac{3}{7}$$

Express each fraction as a percent.

79) $\frac{9}{16} =$ _____ %

80) $\frac{15}{4} =$ _____ %

81) Write each percent as a fraction in simplest form.

15% = _____

Write each percent as a decimal.

82) 17% = _____

83) 250% = _____

Estimate the following:

84) 60% of 996 = _____

85) 8% of \$58 = _____

Solve the following:

86) 36% of 65 = _____

87) 15 is what percent of 125? _____ %

88) Find the percent of change from \$120 to \$135. _____ %