

# *Algebra*

## *Summer Review Packet*

### **DUE THE FIRST WEEK OF SCHOOL**

The problems in this packet are designed to help you review topics from previous mathematics courses that are important to your success in Algebra. Please try to do each problem and show the work that goes with that answer. Bring the packet and work with you to your Algebra class on the first week of school. You will also be tested on your multiplication tables (1-12). This will be timed!

**All work should be completed and ready to turn in on the first day of school. This packet will count as part of your first quarter Algebra grade.**

*Enjoy your summer! ☺*

Name \_\_\_\_\_

**DIRECTIONS**

Please show ALL work for each problem.

Use order of operations to determine each answer:

1)  $4 \cdot 16 + 8 - 0 \div 5$                       1) \_\_\_\_\_

2)  $8(3 + 4) - 2 \cdot 8 \div (5 - 3)$                       2) \_\_\_\_\_

3)  $(82 + (13 - 4)2) \div 5$                       3) \_\_\_\_\_

**Determine the answer for each problem:**

4)  $94 - 87 =$  \_\_\_\_\_                      5)  $-51 - 98 =$  \_\_\_\_\_                      6)  $29 - 100 =$  \_\_\_\_\_

7)  $-777 - (-801) =$  \_\_\_\_\_                      8)  $-10 \cdot (-2 \cdot 18) =$  \_\_\_\_\_                      9)  $-(4 + -x) =$  \_\_\_\_\_

10)  $-844 \div 4 =$  \_\_\_\_\_                      11)  $-183 \div -61 =$  \_\_\_\_\_                      12)  $891 \div -91 =$  \_\_\_\_\_

13)  $-2(x + 3) =$  \_\_\_\_\_                      14)  $3(2x - 3) - (x - 5) =$  \_\_\_\_\_

**Write in simplest form:**

15)  $5\frac{2}{5} + 4\frac{1}{5} =$

16)  $\frac{2}{3} + \frac{5}{8} + \frac{5}{6} =$

17)  $\frac{2}{3}(3 + 9) =$

18)  $9 - 2\frac{1}{3} =$

19)  $10\frac{1}{4} - 3\frac{2}{3} =$

20)  $\frac{1}{2} \cdot \frac{5}{8} \cdot \frac{4}{5} =$

21)  $-\frac{16}{9} \div 8 =$

$$22) -\frac{3}{8} \div \frac{3}{4} =$$

**Solve each equation below and check your answers:**

$$23) x + 22 = 104.8$$

$$24) 184 - x = 51$$

$$25) x - 6 = 30 + 12$$

$$26) 30x = 480$$

$$27) 4y - 8 = 20$$

$$28) 17 = \frac{x}{3}$$

$$29) \frac{x}{24} = \frac{5}{12}$$

**For each of the following, write an algebraic equation. Then solve each equation.**

30) Eight times a number, increased by 6, is 62. What is the number?

31) Number C divided by 0.4 is 10. What is C?

32) One half of a number is equal to 14. What is the number?

**Evaluate each expression given that:**

**a)  $x = 4$  and b)  $x = -3$**

a)  $x = 4$

b)  $x = -3$

33)  $2x =$  \_\_\_\_\_

34)  $x^2 =$  \_\_\_\_\_

35)  $x + 6 =$  \_\_\_\_\_

36)  $5x - 3 =$  \_\_\_\_\_

**Solve each inequality and graph its solution on the number line:**

$$37) 4y > 24$$

$$38) 3 - d \geq 5$$

$$39) \frac{x}{5} \geq 17$$

**Plot each of the following points on the space below. Use the letter to label the point on the graph.**

41) A (3,0)    B (5,5)                      C(-1,2)            D(-3,-2)                      E(0,-3)

42) Find the Greatest Common Factor (GCF) of the following:

a) 36 and 40 \_\_\_\_\_                                              b) 6, 12, and 21 \_\_\_\_\_

43) Name all possible factors of the following:

a) 24 \_\_\_\_\_                                              b) 55 \_\_\_\_\_

44. Mr. Yang teaches two math classes. The data below shows the recent test scores for his students.

**Class A** 56 57 57 59 65 67 68 70 72 75 88 89 91 95 96 98 99

**Class B** 62 73 76 79 79 83 84 84 85 87 87 87 90 92 93 93 95

- Calculate the mean, median and mode for each class.

Solve.

45.  $7a$  for  $a = 8$

46.  $\frac{5+y}{x}$  for  $x=4$  and  $y=11$

47.  $13 - 18 \div 6 =$

48.  $3 + 49 \div 7 - 1 =$

Simplify

49.  $\frac{x}{2xy}$

50.  $\frac{27xy}{3xz}$

Evaluate

51.  $4 \cdot 3^3$

52.  $(7+2)^2$

53.  $2y^2 + 13$  for  $y = 3$

54.  $\frac{4y + 8}{2y}$  for  $y = 2$

Factor

55.  $7x + 28$

56.  $9a + 12b + 3c$

Collect like terms

57.  $-11y + 7x + 4y$

58.  $7a^2 + 9 + 9a + 8a^2$

Write < or >

59.  $-15$  \_\_\_\_  $5$

60.  $1$  \_\_\_\_  $-7$

Find the absolute value

61.  $|-43|$

$$62. |11|$$

Solve

$$63. -2 + -13 =$$

$$64. 21 + -5$$

$$65. -9 - (-16) =$$

$$66. -8 - 17 =$$

$$67. (-7)(-8) =$$

$$68. (12)(-4) =$$

$$69. -42 \div -7 =$$

$$70. -32 \div 4 =$$

$$71. (-6)^2$$

$$72. -4 + 15 - 32 =$$

$$73. -3 - 42 - 7 =$$

$$74. -11 + 11 - 13 =$$

**Solve using order of operation**

$$75. 17 - 14 \div 2 =$$

$$76. 6 \cdot 3 + 9 =$$

$$77. 9 \div 3 - 7 \cdot 2 =$$

$$78. 28 \div (14 + 14) \cdot 9 =$$

$$79. 17 - 4(16-8) =$$

$$80. (2 + 8) 4 - 20 =$$

**Solve.**

$$81. x + 9 = 6$$

$$82. -24 = x + 7$$

$$83. 11 + b = 2$$

$$84. x - 4 = -32$$

$$85. x - 40 = 14$$

$$86. \frac{x}{3} = 36$$

$$87. \frac{x}{7} = -8$$

$$88. 6x = 48$$

$$89. 64 = -8x$$

$$90. 12x - 7 = 29$$

$$91. -2c - 11 = -3$$

$$92. \frac{x}{-6} + 3 = -4$$

$$93. -6y + 9 = 33$$

$$92. 2(x + 7) = 24$$

$$93. 8t + 4 = 7t - 12$$

$$94. 5x - 4 = -3x + 20$$

$$95. Y + 9 > 2$$

$$96. 7a + 5 - 6a < 11$$

$$97. -8b \geq 32$$

$$98. 4 - 4y > 2y - 20$$

$$99. 8^2 \cdot 8^7$$

$$100. a^8 \cdot a^3 \cdot a \cdot a^2$$

$$101. 5^3 \cdot 5^2 =$$

$$102. x^6 + x^2 + x =$$

$$103. (x^3y^2)(x^6y^8)$$

$$104. \frac{x^{11}}{x^2}$$

Simplify. Express each power using positive exponents.

$$105. a^{-2}$$

$$106. 12^0$$

Solve.

107.  $(6^2)^2$

108.  $(5^4)^2$

109.  $(5a)^2$

110.  $(3x)^3$

111.  $(4x^2)^3$

Multiply

112.  $(7x)(3x)$

113.  $(-3x)(8x^3)$

114.  $(7b^2c^3)(-6bc^3)$

Divide.

115.  $\frac{x^9}{x^4}$

116.  $\frac{28x^9}{7x^2}$

117.  $\frac{-36x^4y^7}{-12xy^6}$

Collect Like Terms.

118.  $4x - x + 7$

119.  $9x^2 - 2 + x^2$

120.  $(6x^4 - 2x^3 + x - 1) + (2x^4 - 7x^3 + x^2 - 9)$

Factor. Remember to first look for a common factor.

121.  $x^2 - 36$

122.  $x^2 - 9$

123.  $16x^2 - 81$

124.  $x^2 - 121$

125.  $x^2 + 8x + 16$

126.  $y^2 + 18y + 81$

127.  $x^2 - x - 20$

128.  $x^2 + x - 2$

129.  $x^2 + 3x - 18$

130.  $3a^2 + 9a$

131.  $4y - 4y^2$

132.  $6c - 7cd$

133.  $8x^2 - 2x$

134.  $7y - 8ay$

Add.

135.  $17.3 + .008 + .36 + .3 + 5 =$  \_\_\_\_\_

Subtract.

136.  $1.52 - .976 =$  \_\_\_\_\_      137.  $9 - .53 =$  \_\_\_\_\_

Multiply.

138.  $5.2 \times .9 =$  \_\_\_\_\_      139.  $.0023 \times 6 =$  \_\_\_\_\_

Divide.

140.  $54 \div .6 =$  \_\_\_\_\_      141.  $.528 \div 3.2 =$  \_\_\_\_\_

Add.

142.  $8\frac{1}{4} + 2\frac{2}{5} + 3\frac{7}{10} =$  \_\_\_\_\_      143.  $4\frac{2}{3} + 6\frac{1}{2} =$  \_\_\_\_\_

Subtract.

144.  $13 - 6\frac{5}{8} =$  \_\_\_\_\_      145.  $14\frac{1}{8} - 13\frac{1}{2} =$  \_\_\_\_\_

Multiply.

146)  $\frac{3}{4} \times 2 =$  \_\_\_\_\_

147)  $1\frac{1}{2} \times \frac{4}{5} \times 2\frac{1}{6} =$  \_\_\_\_\_

Divide.

148)  $\frac{3}{4} \div \frac{3}{8} =$  \_\_\_\_\_

149)  $1\frac{5}{8} \div 1\frac{7}{32}$

150)  $\frac{2}{3} \div \frac{5}{9}$