

Pre AP Algebra I Summer Packet

Give an example of each property for real numbers.

1. $a + b = b + a$ $47 + 23 = 23 + 47$.
2. $(a + b) + c = a + (b + c)$ $(5 + 7) + 22 = 5 + (7 + 22)$.
3. $5 + -5 = 0$.
4. $37 + 0 = 37$ Additive identity is 0 (zero)
5. $0(35) = 0$ anything multiplied by zero is zero.
6. $5 (1/5) = 1$ a number multiplied by its reciprocal is 1.
7. $23(47 \times 52) = (23 \times 47) 52$.
8. $35(23)=23(35)$.
9. $a(b+c) = ab + ac$. $22(7 + 3) = 22(7) + 22(3)$

Define and give an example of each term:

10. absolute value- the absolute value of a number a is the distance between a and zero on a number line. The symbol $|a|$ represents the absolute value of a . Absolute value is never negative, it is a measure of distance.
11. reciprocal – The reciprocal of a is $1/a$, where the product of a and $1/a$ is one, and a **may not** equal zero.
12. variable – A letter used to represent one or more numbers.
13. base (of a power)- the name or expression that is used as a factor in a repeated multiplication. Example, in the power 3^4 , the base is three.
14. exponent – The number which tells how many times the base of a power is repeated as a factor.
15. expression a mathematical phrase that contains operations, numbers, and/or variable, no equal sign.
16. equation - an open sentence that contains the symbol “=”

17. inequality – an open sentence that contains one of the symbols, $<$, \leq , $>$, \geq .
18. coefficient - the number part of a term with a variable part, example, the coefficient in $-6x$ is -6 .
19. integer – The whole numbers and their opposites. (Integers DO NOT include fractions or decimals.)
20. rational number – a number that can be expressed in the form a/b where a and b are integers and b does not equal zero.
21. irrational number - a number that cannot be written as the quotient of two integers. The decimal form never terminates nor repeats.
22. real number - The set of all rational and irrational numbers.

Solve each problem, showing all steps and work. Leave fraction problems as fractions, in improper form when applicable.

23. $\frac{1}{2} + \frac{1}{8} = 5/8$

24. $\frac{3}{5} - \frac{1}{10} = 1/2$

25. $\frac{15}{24} - \frac{7}{12} = 1/24$

26. $5\frac{1}{8} - 2\frac{3}{4} = 19/8$

27. $1\frac{3}{7} + \frac{1}{2} = 17/14$

28. $.067 - .45 = -0.383$

29. $2.56 + 1.3 = 3.86$

30. $20.002 - 20.02 = -0.018$

31. $.78 \times .5 = 0.39$

32. $3.08 \div 0.004 = 770$

33. Find the reciprocal of $4\frac{3}{4} = 4/19$

34. $7\frac{1}{5} \div 2\frac{1}{4} = 16/5$

$$35. -2\frac{1}{4} \div 1\frac{1}{3} = -27/16$$

$$36. -5\frac{1}{4} \times -\frac{1}{17} = 21/68$$

$$37. -\frac{5}{8} \times -\frac{4}{15} = 1/6$$

$$38. 7 + (-11) = -4$$

$$39. (-26) + (-44) + 14 + 36 = -20$$

$$40. (-8) - (-7) = -1$$

$$41. 65 - (-335) = 400$$

$$42. 13 + (-38) - (-42) - 17 = 0$$

$$43. (-14)(-6) = 84$$

$$44. (5)(-3)(-8) = 120$$

$$45. (-4)(6)(-5)(-6) = -720$$

$$46. \frac{-60}{-15} = 4$$

$$47. \frac{-1080}{40} = -27$$

$$48. |-4 - 8| = 12$$

$$49. |-11| - |-29| = -18$$

$$50. 0.3 + 2 \times 7 = 14.3$$

$$51. 20 + 10 \div 5 = 22$$

$$52. 6 \times 5 + 3 \times 7 - 36 \div 4 = 42$$

$$53. 4(7-5)^3 + 11 - 13 \times 2 = 17$$

$$54. \frac{20+10}{5} = 6$$

$$55. 3^4 - 2 \times 6^2 = 9$$

$$56. \frac{[47 - (5 - 2)](1 + 2^3)}{3 \times 7 - 5^2} = -99$$

$$57. 2 \times [3 - (7 - 1) \times ((-3) - 4^2)] = 10$$

Evaluate each expression as indicated.

$$58. -x-y \text{ for } x = -2 \text{ and } y = \frac{1}{2} = 3/2$$

$$59. -u + v \text{ for } u = -2 \text{ and } v = -\frac{4}{7} = 10/7$$

$$60. 3xy - 4x^2y \text{ for } x = -1 \text{ and } y = -2 = 14$$

$$61. (2x + y)(20 - xy) \text{ if } x = -1 \text{ and } y = 2 = 0$$

$$62. [(16 - 2x) + w] \div x \text{ if } w = \frac{1}{2} \text{ and } x = -2 = -41/4$$

Write an expression or equation as indicated. If an equation is written, solve it.

$$63. \text{The product of 26 and } c = 26c$$

$$64. \text{The sum of 12 and five times a number} = 12 + 5n$$

$$65. 12 \text{ less than twice a number} = 2x - 12$$

$$66. \text{a number squared} = n^2$$

$$67. \text{Twelve more than a number is } -12. \text{ Find the number} = 12 + x = -12, x = -24$$

$$68. 75 \text{ minus some number is } -113. \text{ What is the number? } 75 - x = -113, x = 188$$

$$69. 21 \text{ less than a certain number is } 79. \text{ What is the number? } x - 21 = 79, x = 100$$

$$70. \text{The quotient of } x \text{ and } -6 \text{ is } 15. \text{ Find } x. x / -6 = 15, x = -90$$

$$71. \text{When 22 is subtracted from three times a number, the result is } -1. \text{ Find the number. } 3x - 22 = -1, x = 7$$

72. $\frac{9}{12} = \frac{e}{8}$ $e = 6$

73. $\frac{84}{108} = \frac{k}{9}$ $k = 7$

74. $\frac{v}{7} = \frac{3.1}{6.2}$ $n = 3.5$

75. Solve for x. $17 = \frac{x}{3}$ $x = 51$

76. What is 12.5% of 96? 12

77. 60 is 75% of what number? 80

78. The integer 6 is what percent of 5? 120%

79. The regular price of a television is \$500. What is the sale price if it is on a 15% off sale? \$425

80. The temperature was 72°F and then it dropped 2° per hour for the next eight hours. What is the final temperature? 56 degrees

81. Find the number for x that would make the ratios equivalent. $\frac{2}{5} = \frac{x}{15}$ $x = 6$

82. In a class of 26 students, 15 students are boys, what is the ratio of girls to boys, and girls to class? 11/15, 11/26

83. What is $33\frac{1}{3}\%$ of 195? 65

84. In an election, the winner received 62% of the 850 votes that were cast. How many votes did the winner receive? 527

85. In one month, a stereo store sold \$17,500 worth of VCR's, which was 28% of its total sales. Find the total sales for the month. \$62,5000

86. Carlos made 300 t-shirts for the baseball world series. The first week he sold 48% of them. The next week, he sold 25% of the remainder. How many t-shirts did he sell in the two week period? 183

87. At the appliance store, a saleswoman gets 5% commission on everything she sells. How much would she have to sell to get \$750 in commission?

\$15,000

88. The cost of a Kia increased from \$16,000 last year, to \$17,800 this year. What is the percent of increase on the car? 11.25%

Solve for the variable.

89. $y + 23 = -9$ $y = -32$

90. $h + \frac{2}{3} = -\frac{7}{12}$ $h = -5/4$

91. $6x - 14 = 28$ $x = 7$

92. $4r + 4 = \frac{2}{3}$ $r = -5/6$

93. $36 = -42p$ $p = -6/7$

94. $8 = c + 21$ $c = -13$

95. $45 = -15x$ $x = -3$

96. $9z - 3 = -30$ $z = -3$

97. $k + \frac{5}{6} = \frac{5}{18}$ $k = -5/9$

98. $3y - 5 = 16$ $y = 7$

99. $5y + 147 = 37$ $y = -22$

100. $-y + 14 = 9$ $y = 5$

101. $-7x + 3 > -\frac{15}{2}$ $x < 3/2$

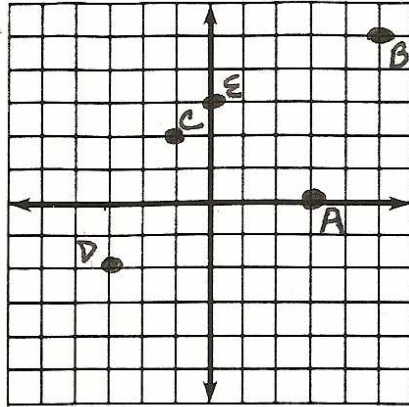
102. $-2h - 0.3 < 1.4$ $h > -0.85$

103. $-3n + 48 \geq 0$ $n \leq 16$

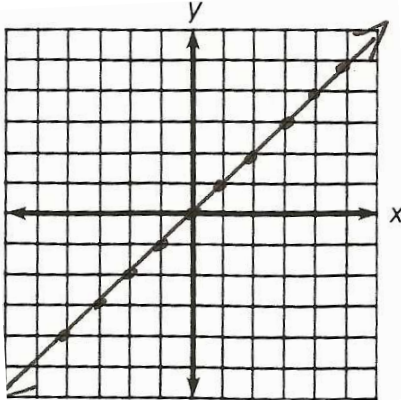
104. $0 \leq 10k - \frac{1}{5}$ $k \geq 1/50$

Always graph accurately. Draw axes with a straight edge, and lines with a straight edge.

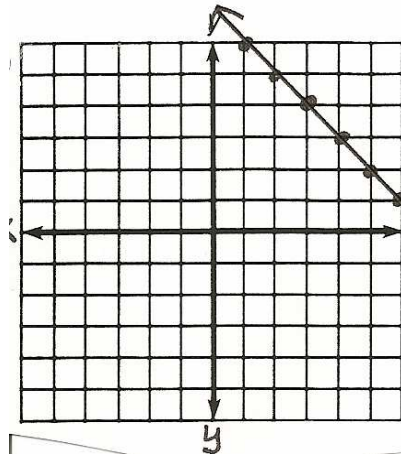
105. Use graph paper to plot the points. A(3,0), B(5,5), C(-1,2) D(-3,-2), E(0,3)



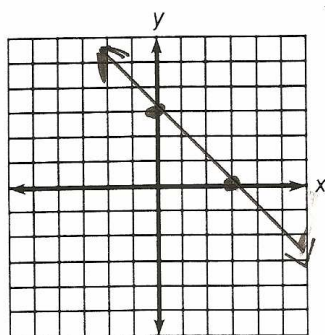
106. Graph the line $y = x$ by making a table of values.



107. Graph the line $y = -x + 7$ by making a table of values.



108. Graph the line $2x + 2y = 6$ by making a table of values.



109. A picture frame is 9 inches tall and has a diagonal of 15 inches. What is the width of the frame? (Hint: Pythagorean Theorem?) 12 inches
110. The length of one side of a triangular lot is six meters less than three times the length of the second side. The third side is eight meters longer than the first side. The perimeter of the lot is 80 meters. Find the length of all three sides. Side 1 = 30, Side 2 = 12, Side 3 = 38

Simplify by distributing/combining like terms.

111. $7x + 3y - 3x - 2y$ $4x + y$
112. $7c^2 + 9c + c + 14c^2$ $21c^2 + 10c$
113. $3(x + y)$ $3x + 3y$
114. $-2(2a - 3b)$ $-4a + 6b$
115. $3 + 2(8n + 4) + 9n$ $25n + 11$
116. $6x + 7(y + x)$ $13x + 7y$