Name_____ Date_____

Summer Math Packet for incoming Algebra I Students

Prerequisite Skills for Students Entering Algebra I or Honors Algebra I.

Algebra I: This course is a high school level course and therefore, the grade earned for the year will appear on your high school transcript regardless of if you take it in middle school or high school.

The Prerequisite Packet: Students need a strong foundation to be ready for algebra and future math courses. While the problems in this packet are optional, completing this packet and checking your answers is strongly encouraged.

The attached worksheets can be used to practice these skills. Answers are also provided. If a student has forgotten how to do one of the skills, it is suggested that they use Khan Academy to find a tutorial video. Please reach out with any additional questions you may have over the summer and we will do our best to give a timely response.

Calculators: These problems should be completed without using a calculator, except where noted.

Skills needed for Algebra I

I. Real Number Operations
   a. Add, Subtract, Multiply, and Divide Fractions & Integers
   b. Changing Forms of Numbers (percents, decimals, fractions)
   c. Perfect Squares to 225.

II. Solving Equations & Inequalities
   a. Solve One Step, Two Step, Multi-Step Equations, & Proportions
   b. Solve & Graph One Step, Two Step, and Multi-Step Inequalities
   c. Manipulate Formulas (Literal Equations)
   d. Solve Word Problems

III. Expressions
   a. Simplify Expressions Using the Order of Operations
   b. Write Expressions Using Exponential Notation
   c. Combine Like Terms
   d. Use the Distributive Property
   e. Evaluate Algebraic Expressions

IV. Coordinate Graphing
   a. Identify Parts of the Coordinate Plane (Axes, Quadrants)
   b. Plot Ordered Pairs

V. Other (calculators will be permitted on this section)
   a. Use the Commutative, Associative, and Identity Properties
   b. Percent Problems
   c. Percent Change
   d. Mark-up, Discount, and Tax Problems
   e. Classify Numbers (Real, Rational, Irrational, Integer, Natural, Whole)

1a. Real Number Operations- Add, Subtract, Multiply, & Divide Integers and Fractions

Simplify each expression. Answers can be left as improper, but should be fully reduced.

1. $\frac{7}{6} - \frac{5}{6}$

2. $\frac{2}{5} + \frac{4}{5}$

3. $-\frac{4}{5} - \frac{7}{8}$

4. $2 - \frac{13}{8}$

5. $\left(-1\frac{7}{8}\right) + \left(-3\frac{1}{2}\right)$

6. $1\frac{2}{5} - \left(-3\frac{3}{4}\right)$

7. $\frac{4}{9} \cdot \frac{7}{4}$

8. $-2 \cdot \frac{3}{7}$

9. $-2\frac{2}{3} \cdot 4\frac{1}{10}$

10. $-\frac{1}{5} \div \frac{7}{4}$

11. $11\frac{6}{7} \div 5\frac{3}{4}$

12. $\frac{3}{2} \div -\frac{10}{7}$

13. $-34 + 50$

14. $-38 - 30$

15. $2 - (-9) - 8$

16. $10 + 3 - (-8)$

1b. Changing Forms of Numbers (percents, decimals, fractions)

Write the following percents as decimals.

17. 90%

18. 0.3%

19. 445%

Write each decimal as a percent.

20. 0.452

21. 4.78

22. 0.1

Write each percent as a fraction in lowest terms.

23. 70%

24. 58%

25. 5%

Write each fraction as a percent. Use repeating decimals when necessary.

26. 2/3

27. 1/20

28. ¼

1c. Know the Perfect Squares to 225.

29. Fill in the chart

$1^2 =$			$9^2 =$	
$2^2 =$			$10^2 =$	
$3^2 =$			$11^2 =$	
$4^2 =$			$12^2 =$	
$5^2 =$			$13^2 =$	
$6^2 =$			$14^2 =$	
$7^2 =$			$15^2 =$	
$8^2 =$				

2a. Solve One, Two, Multi-Step Equations & Proportions

Solve each of the following equations.

30. $3p - 2 = -29$

31. $-9 + \frac{n}{4} = -7$

32. $-12r + 4 = 100$

33. $\frac{m-13}{2} = -8$

34. $\frac{x}{3} + \frac{x}{4} = 7$

35. $\frac{-20x}{3} + \frac{15x}{7} = 5$

36. $\frac{2x}{3} - \frac{x}{6} = \frac{5}{4}$

37. $\frac{1}{3}\left(x - \frac{1}{2}\right) - \frac{1}{4}\left(x - \frac{1}{3}\right) = \frac{1}{3}$

38. $6 = 1 - 2n + 5$

39. $-8 = -(x + 4)$

40. $5n + 34 = -2(1 - 7n)$

41. $\frac{10}{k} = \frac{8}{4}$

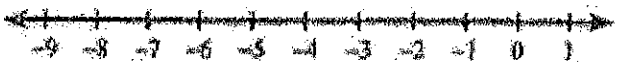
42. $\frac{p}{8} = \frac{13}{2}$

43. $\frac{6}{14} = \frac{5}{n}$

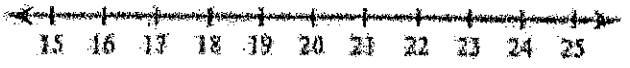
2b. Solve & Graph One Step, Two Step, and Multi-Step Inequalities

Solve each inequality and graph its solution.

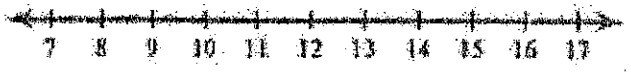
44. $\frac{n}{3} + 2 > 0$



45. $8x + 2 \leq 138$

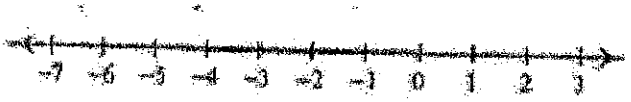


46. $-7v + 5 \geq -79$



47. $60 > 5 - 5n$

48. $2(6 + 4n) \geq 12 - 8n$



49. $-2(9r+3) - 7 \geq -10r - (12r + 9)$

2c. Manipulate Formulas

Solve for the indicated variable.

50. $g = 6x$, for x

51. $12am = 4$, for a

52. $g = x - c + y$, for x

53. $-3x + 2x = -3$, for x

Write an algebraic equation for each word problem and solve.

54. 331 students went on a field trip. Six buses were filled and 7 students traveled in cars. How many students were in each bus?

55. You bought a paperback book for $5 and four magazines. You spent a total of $25. How much did each magazine cost?

56. Jill sold half of her comic books and then bought sixteen more. She now has 36 comic books. With how many did she begin?

57. One cantaloupe costs $2. How many cantaloupes can you buy for $6?

58. One bunch of seedless black grapes costs $2. How many bunches can you buy for $20?

59. Molly bought two heads of cabbage for $1.80. How many heads of cabbage can Willie buy if he has $28.80?

3a. Simplify Expressions Using the Order of Operations

60. $2 + 7 * 5$

61. $7 + 10 * 5 + 10$

62. $(6 - 4) * 49 \div 7$

63. $3 + 4(10 - 6 \div 2)$

64. $20 \div (4 - (10 - 8))$

65. $(10 + 2) - 2) * 6 - 1$

3b. Write Expressions Using Exponential Notation

Re-write using exponents

66. xxxxx

67. 4mmmnn

68. 3 (ac)(ac)(ac)(ac)

69. (x+2)(x+2)

Re-write without using exponents.

70. $4y^3$

71. $7(vw)^3$

72. $5x^4y^2$

73. $-5x^2$

Evaluate.

74. $(2x)^4$, if x = 5

75. $3x^2$, if x = 4

76. $(3x+2)^2$, if x = 3

77. b^6, if b = 2

3c. Combine Like Terms

Simplify.

78. $-3p + 6p$

79. $-9r + 10r$

80. $5b + 6 - 4$

81. $10x + 36 - 38x - 47$

3d. Use the Distributive Property

Simplify

82. $4(8n + 2)$

83. $-(-2n - n)$

84. $2(3x + 4)$

85. $3(x - 9) + 2(x - 4)$

3e. Translate and Evaluate Algebraic Expressions

Write each statement as an algebraic expression.

86. the difference of 10 and a number

87. Half of a number

88. the sum of a number and 8

89. The quotient of 18 and a number

Evaluate each expression.

90. 20 decreased by 17

91. 10 less than 17

92. 9 times 5

93. The sum of twice a number and three

Evaluate using the values given.

94. $n^2 - m$; use $m = 7$, and $n = 8$

95. $x - y + 6$; use $x = 6$ and $y = 1$

96. $m - n \div 4$; use $m = 5$ and $n = 8$

97. $15 - (m + p)$; use $p = 10$ and $m = 3$

4a. Identify Parts of the Coordinate Plane (Axes, Quadrants)

100. State the quadrant or axis that each point lies in.

L(-2,1)

K (-3, -2)

J(3, 1)

R (7, 0)

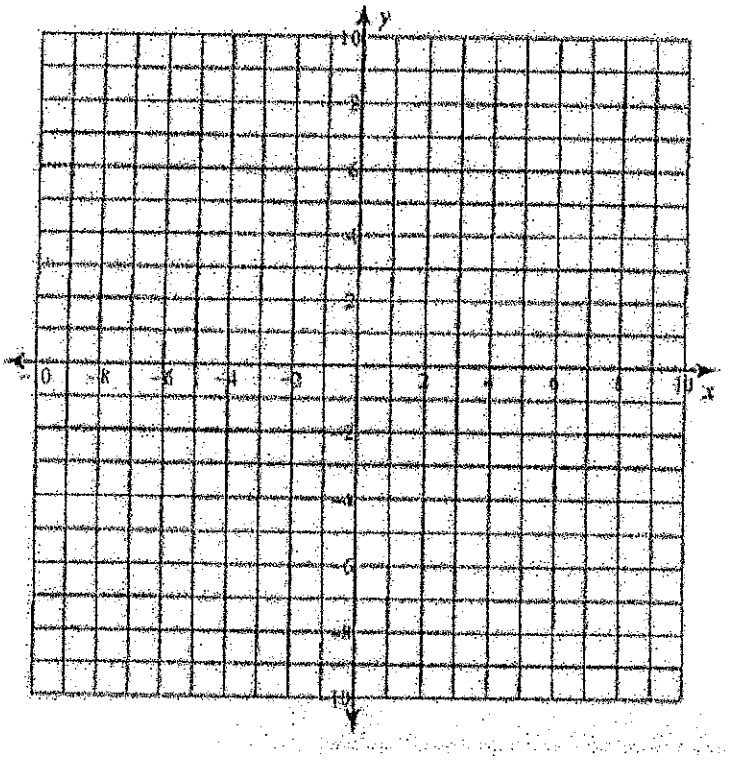
S (0,-3)

T (5, -1)

101. What is the point where the x- and y-axis intersect called?

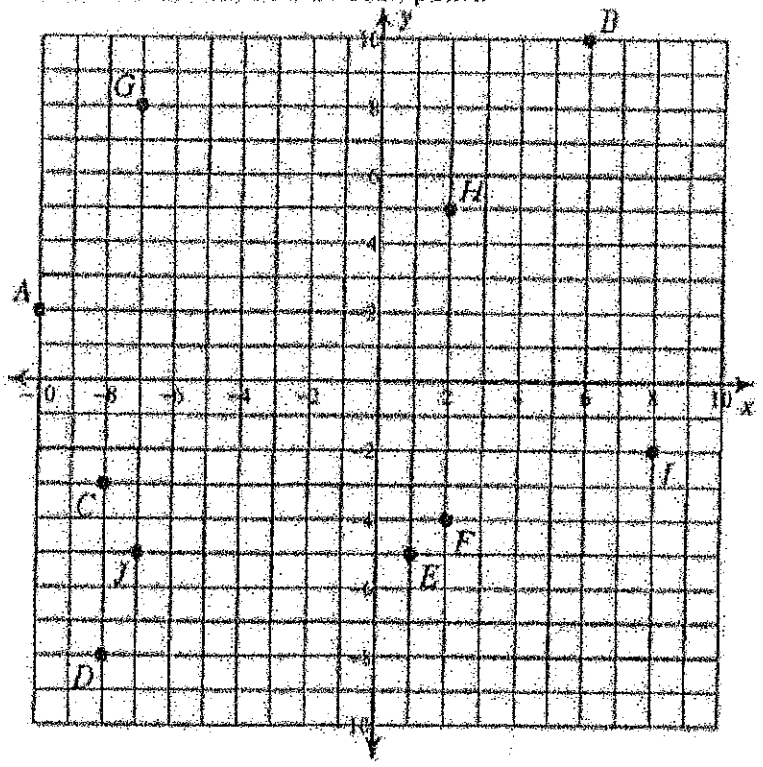
4b. Plot Ordered Pairs.

98. Plot each point



$J(5, 10)$ $I(1, 9)$ $H(6, -9)$
$G(-6, 8)$ $F(9, 0)$ $E(-6, 0)$
$D(-8, -4)$ $C(5, 0)$ $B(-1, -1)$
$A(-8, -1)$

99. State the coordinates of each point.



5a. Use the Commutative, Associative, Distributive, and Identity Properties

A. Commutative Property of Addition
B. Associative Property of Addition
C. Identity Property of Addition
D. Commutative Property of Multiplication
E. Associative Property of Multiplication
F. Identity Property of Multiplication
G. Distributive Property

Use the appropriate letter to name the property illustrated.

102. $8 * 1 = 8$

103. $(9+4) + 6 = 9 + (4 + 6)$

104. $8(c + d) = 8(d + c)$

105. $4 + 0 = 4$

106. $7 * 3 = 3 * 7$

107. $a(b + c) = ab + ac$

108. $(4 + 7) + x = x + (7 + 4)$

5b. Percent Problems

Solve each problem. Round to the nearest tenth if needed.

109. What percent of 126 is 22?

110. 25.7 is what percent of 141?

111. 62% of what is 89.3?

112. 17% of what is 156?

113. 30% of 117 is what

114. 120% of 118 is what?

5c. Percent Change

Find each percent of increase of decrease. Round to the nearest tenth of a percent.

115. From 82 to 38

116. From 33 to 47

117. From 8 to 4

118. From 63 to 98?

5d. Mark -up, Discount, and Tax Problems

Find the selling price of each item. Round to the nearest cent if needed.

119. Cost of a sled = $99.50, markup = 95%

120. Cost of an oil change: $18, markup = 70%

121. Original price of a book = $18.50, discount = 45%

122. Original price of a camera = $554.99, discount = 60%

123. Cost of a new mixer = $249, tax = 9.75%

5e. Classify Numbers

124. Use checks to show whether or not the given number belongs in the set. A check mark indicates the number is a member of the set.

	Natural	Whole	Integer	Rational	irrational
25					
-14					
$\frac{5}{7}$					
0.32					
$\sqrt{8}$					
$9.3\overline{9}$					

Answers | Summer Packet for Incoming 8th graders

1a. Real Number Operations- Add, Subtract, Multiply, & Divide Integers and Fractions

Simplify each expression. Answers can be left as improper, but should be fully reduced.

1. $\frac{7}{6}-\frac{5}{6}$ $= \frac{2}{6} = \frac{1}{3}$

2. $\frac{2}{5}+\frac{4}{5}$ $= \frac{6}{5}$

3. $-\frac{4}{5}-\frac{7}{8}$ $= -\frac{32}{40}-\frac{35}{40} = \frac{-67}{40}$

4. $2-\frac{13}{8}$ $= \frac{16}{8}-\frac{13}{8} = \frac{3}{8}$

5. $\left(-1\frac{7}{8}\right)+\left(-3\frac{1}{2}\right)$ $= \frac{-15}{8}+\frac{-7}{2}\cdot\frac{4}{4} = \frac{-43}{8}$

6. $1\frac{2}{5}-\left(-3\frac{3}{4}\right)$ $= \frac{7}{5}+\frac{15}{4} = \frac{28}{20}+\frac{75}{20} = \frac{103}{20}$

7. $\frac{4}{9}\cdot\frac{7}{4}$ $= \frac{7}{9}$

8. $-2\cdot\frac{3}{7}$ $= \frac{-6}{7}$

9. $-2\frac{2}{3}\cdot 4\frac{1}{10}$ $= -\frac{8}{3}\cdot\frac{41}{10_5} = \frac{-164}{15}$

10. $-\frac{1}{5}\div\frac{7}{4}$ $= -\frac{1}{5}\cdot\frac{4}{7} = \frac{-4}{35}$

11. $11\frac{6}{7}\div 5\frac{3}{4}$ $\frac{83}{7}\cdot\frac{4}{23} = \frac{332}{161}$ ($5\frac{3}{4} = \frac{23}{4}$)

12. $-\frac{3}{2}\div-\frac{10}{7}$ $-\frac{3}{2}\cdot\frac{-7}{10} = \frac{21}{20}$

13. $-34+50$ 16

14. $-38-30$ -68

15. $2-(-9)-8$ $= 3$

16. $10+3+(+8)$ $= 21$

1b. Changing Forms of Numbers (percents, decimals, fractions)

Write the following percents as decimals.

17. 90% .9 18. 0.3% .003 19. 445% 4.45

Write each decimal as a percent.

20. 0.452 45.2% 21. 4.78 478% 22. 0.1 10%

Write each percent as a fraction in lowest terms.

23. 70% $\frac{7}{10}$ 24. 58% $\frac{58}{100} = \frac{29}{50}$ 25. 5% $\frac{1}{20}$

Write each fraction as a percent. Use repeating decimals when necessary.

26. 2/3 $66\frac{2}{3}\%$ or $66.\overline{6}\%$ 27. 1/20 5% 28. ¼ 25%

1c. Know the Perfect Squares to 225.

29. Fill in the chart

$1^2 =$	1		$9^2 =$	81
$2^2 =$	4		$10^2 =$	100
$3^2 =$	9		$11^2 =$	121
$4^2 =$	16		$12^2 =$	144
$5^2 =$	25		$13^2 =$	169
$6^2 =$	36		$14^2 =$	196
$7^2 =$	49		$15^2 =$	225
$8^2 =$	64			

2a. Solve One, Two, Multi-Step Equations & Proportions

Solve each of the following equations.

30. $3p - 2 = -29$

$+2 \quad +2$

$\frac{3p}{3} = \frac{-27}{3}$

$p = -9$

31. $-9 + \frac{n}{4} = -7$

$+9 \quad +9$

$4 \cdot \frac{n}{4} = 2 \cdot 4$

$n = 8$

32. $-12r + 4 = 100$

$-4 \quad -4$

$-12r = 96$

$r = -8$

33. $\left(\frac{m-13}{2} = -8\right) 2$

$m - 13 = -16$

$+13 \quad +13$

$m = -3$

34. $\left[\frac{x}{3} + \frac{x}{4} = 7\right] 12$

$4x + 3x = 84$

$7x = 84$

$x = 12$

35. $\left(\frac{-20x}{3} + \frac{15x}{7} = 5\right) 21$

$-140x + 45x = 105$

$\frac{-95x}{-95} = \frac{105}{-95}$

$x = -\frac{21}{19}$

36. $\left[\frac{2x}{3} - \frac{x}{6} = \frac{5}{4}\right] 12$

$8x - 2x = 15$

$\frac{6x}{6} = \frac{15}{6}$

$x = \frac{5}{2}$

37. $\left[\frac{1}{3}\left(x - \frac{1}{2}\right) - \frac{1}{4}\left(x - \frac{1}{3}\right) = \frac{1}{3}\right] 12$

$4(x - \frac{1}{2}) - 3(x - \frac{1}{3}) = 4$

$4x - 2 - 3x + 1 = 4$

$x - 1 = 4$

$x = 5$

38. $6 = 1 - 2n + 5$

$6 = 6 - 2n$

$-6 \quad -6$

$\frac{0}{2} = \frac{-2n}{-2}$

$n = 0$

39. $-8 = -(x + 4)$

$-8 = -x - 4$

$+4 \quad +4$

$-4 = -x$

$x = 4$

40. $5n + 34 = -2(1 - 7n)$

$5n + 34 = -2 + 14n$

$-5n + 2 \quad +2 \quad -5n$

$\frac{36}{9} = \frac{9n}{9}$

$n = 4$

41. $\frac{10}{k} = \frac{8}{4}$

$\frac{8k}{8} = \frac{40}{8}$

$k = 5$

42. $\frac{p}{8} = \frac{13}{2}$

$\frac{104}{2} = \frac{2p}{2}$

$52 = p$

43. $\frac{6}{14} = \frac{5}{n}$

$\frac{70}{6} = \frac{6n}{6}$

$n = 11\frac{2}{3}$ or $\frac{35}{3}$

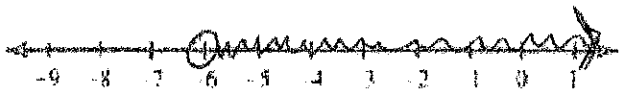
2b. Solve & Graph One Step, Two Step, and Multi-Step Inequalities

Solve each inequality and graph its solution.

44. $\frac{n}{3} + 2 > 0$

$-2 \quad -2$

$3\left(\frac{n}{3} > -2\right)$ $\quad n > -6$

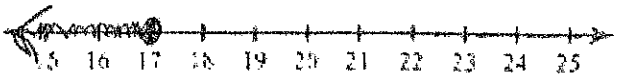


45. $8x + 2 \leq 138$

$-2 \quad -2$

$8x \leq 136$

$x \leq 17$

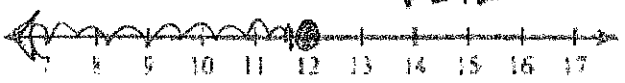


46. $-7v + 5 \geq -79$

$-5 \quad -5$

$\frac{-7v}{-7} \geq \frac{-84}{-7}$

$v \leq 12$



47. $60 > 5 - 5n$

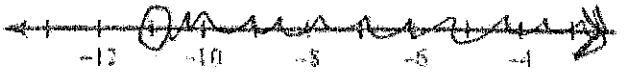
$-5 \quad -5$

$55 > -5n$

$\frac{55}{-5} > \frac{-5n}{-5}$

$-11 < n$

$n > -11$

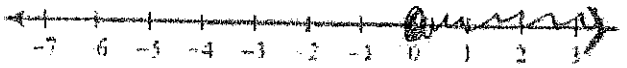


48. $2(6 + 4n) \geq 12 - 8n$

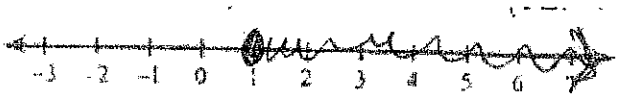
$12 + 8n \geq 12 - 8n$

$-12 \quad +8n \quad -12 \quad +8n$

$\frac{16n}{16} \geq \frac{0}{16}$ $\quad n \geq 0$



49. $-2(9r+3) - 7 \geq -10r - (12r + 9)$



$-18n - 6 - 7 \geq -10r - 12r - 9$

$-18n - 13 \geq -22r - 9$

$+22r + 13 \quad +22r + 13$

$\frac{4n}{4} \geq \frac{4}{4}$ $\quad r \geq 1$

2c. Manipulate Formulas

Solve for the indicated variable.

50. $\frac{g}{6} = \frac{6x}{6}$, for x

$x = \frac{g}{6}$

51. $\frac{12am}{12m} = \frac{4}{12m}$, for a

$a = \frac{1}{3m}$

52. $g = x - c + y$, for x

$+c-y \quad +c-y$

$g + c - y = x$

53. $-3x + 2x = -3$, for x

$\frac{-x}{-1} = \frac{-3}{-1}$

$x = 3$

Write an algebraic equation for each word problem and solve.

54. 331 students went on a field trip. Six buses were filled and 7 students traveled in cars. How many students were in each bus?

$6b + 7 = 331$

$b = 54$

55. You bought a paperback book for $5 and four magazines. You spent a total of $25. How much did each magazine cost?

$5 + 4m = 25$

$m = 5$

56. Jill sold half of her comic books and then bought sixteen more. She now has 36 comic books. With how many did she begin?

$\frac{1}{2}c + 16 = 36$

$c = 40$

57. One cantaloupe costs $2. How many cantaloupes can you buy for $6?

$2x = 6$

$x = 3$

58. One bunch of seedless black grapes costs $2. How many bunches can you buy for $20?

$2b = 28 \quad b = 10$

59. Molly bought two heads of cabbage for $1.80. How many heads of cabbage can Willie buy if he has $28.80?

$2c = 1.80$

$c = .90$

$\frac{28.80}{.90} = c$

$c = 32$

3a. Simplify Expressions Using the Order of Operations

60. $2 + 7 * 5$

$2 + 35 = 37$

61. $7 + 10 * 5 + 10$

$7 + 50 + 10$

67

62. $(6 - 4) * 49 \div 7$

$2 \cdot 49 \div 7$

$98 \div 7 = 14$

63. $3 + 4(10 - 6 \div 2)$

$(10 - 3)$

$3 + 4(7)$

$3 + 28 = 31$

64. $20 \div (4 - (10 - 8))$

$20 \div (4 - 2)$

$20 \div 2 = 10$

65. $(10 + 2) - 2) * 6 - 1$

$(12 - 2)$

$10 \cdot 6 - 1$

$60 - 1$

59

3b. Write Expressions Using Exponential Notation

Re-write using exponents

66. xxxxx x^5

67. 4mmmnn $4m^3n^2$

68. 3 (ac)(ac)(ac)(ac) $3(ac)^4$ or $3a^4c^4$

69. (x+2)(x+2) $(x+2)^2$

Re-write without using exponents.

70. $4y^3 = 4 \cdot yyy$

71. $7(vw)^3$ $7vvvwww$

72. $5x^4y^2$ $5xxxxyy$

73. $-5x^2$ $-5xx$

Evaluate.

74. $(2x)^4$, if x = 5 $(2 \cdot 5)^4 = 10^4$

$10,000$

75. $3x^2$, if x = 4 $3(4)^2 = 3 \cdot 16 = 48$

76. $(3x+2)^2$, if x = 3

$(3 \cdot 3 + 2)^2$

$(9 + 2)^2 = 121$

77. b^6, if b = 2

$2^6 = 64$

3c. Combine Like Terms

Simplify.

78. $-3p + 6p$ = $3p$

79. $-9r + 10r$ r or $1r$

80. $5b + 6 - 4$ = $5b+2$

81. $10x + 36 - 38x - 47$ = $-28x - 11$

3d. Use the Distributive Property

Simplify

82. $4(8n + 2)$ = $32n+8$

83. $-(-2n - n)$ $2n+n = 3n$

84. $2(3x + 4)$ $6x+8$

85. $3(x - 9) + 2(x - 4)$ = $5x-35$

$3x-27+2x-8$

3e. Translate and Evaluate Algebraic Expressions

Write each statement as an algebraic expression.

86. the difference of 10 and a number

$10-n$

87. Half of a number $\frac{1}{2}n$

88. the sum of a number and 8 $n+8$

89. The quotient of 18 and a number

$\frac{18}{n}$

Evaluate each expression.

90. 20 decreased by 17 $20-17 = 3$

91. 10 less than 17 7

$17-10$

92. 9 times 5 45

9.5

93. The sum of twice a number and three

$2n+3$

Evaluate using the values given.

94. $n^2 - m$; use m = 7, and n = 8

$8^2 - 7 = 64-7 = 57$

95. $x - y + 6$; use x = 6 and y = 1 $6-1+6 = 11$

96. $m - n \div 4$; use m = 5 and n = 8

$5-8\div4$

$5-2 = 3$

97. $15 - (m + p)$; use p = 10 and m = 3

$15-(3+10)$

$15-13 = 2$

4a. Identify Parts of the Coordinate Plane (Axes, Quadrants)

100. State the quadrant or axis that each point lies in.

L(-2,1) II

K (-3, -2) III

J(3, 1) I

R (7, 0) x axis

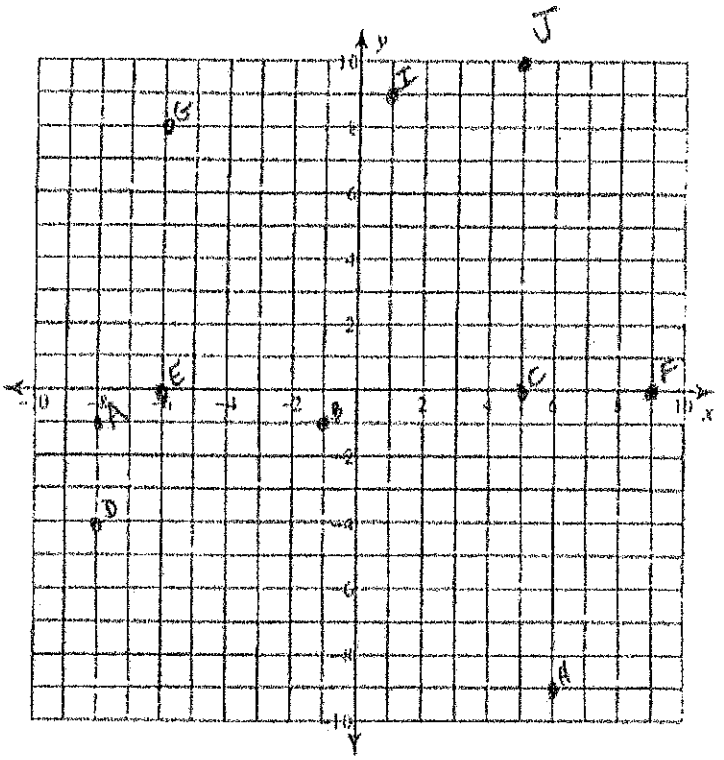
S (0,-3) y axis

T (5, -1) IV

101. What is the point where the x- and y-axis intersect called? origin

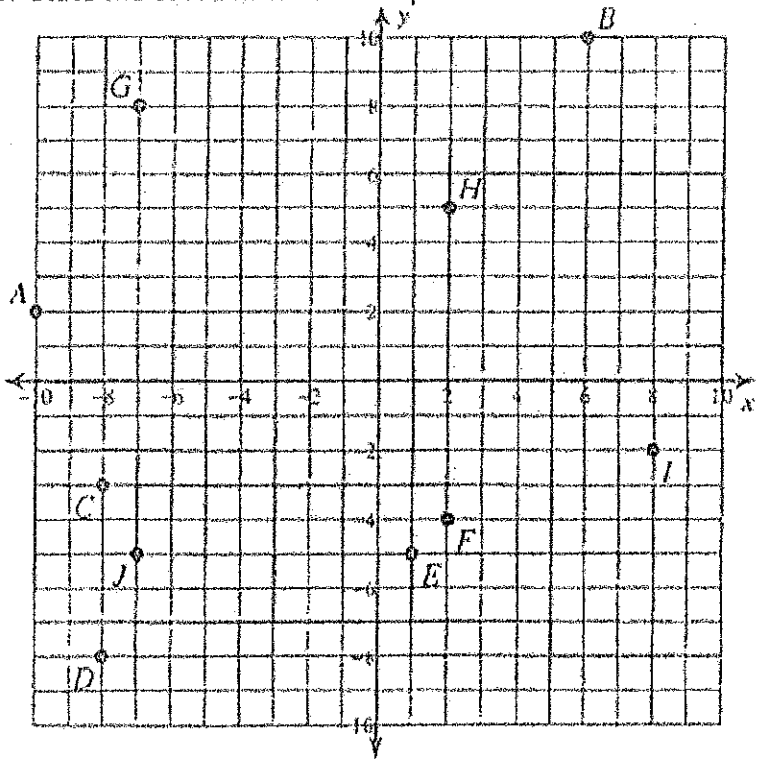
4b. Plot Ordered Pairs.

98. Plot each point



) $J(5, 10)$ $I(1, 9)$ $H(6, -9)$
$G(-6, 8)$ $F(9, 0)$ $E(-6, 0)$
$D(-8, -4)$ $C(5, 0)$ $B(-1, -1)$
$A(-8, -1)$

99. State the coordinates of each point.



A (-10, 2)
B (6, 10)
C (-8, -3)
D (-8, -8)
E (1, -5)
F (2, -4)
G (-7, 8)
H (2, 5)
I (8, -2)
J (-7, -5)

5a. Use the Commutative, Associative, Distributive, and Identity Properties

A. Commutative Property of Addition
B. Associative Property of Addition
C. Identity Property of Addition
D. Commutative Property of Multiplication
E. Associative Property of Multiplication
F. Identity Property of Multiplication
G. Distributive Property

Use the appropriate letter to name the property illustrated.

102. $8 * 1 = 8$ F

103. $(9+4) + 6 = 9 + (4 + 6)$ B

104. $8(c + d) = 8(d + c)$ A

105. $4 + 0 = 4$ C

106. $7 * 3 = 3 * 7$ D

107. $a(b + c) = ab + ac$ G

108. $(4 + 7) + x = x + (7 + 4)$ A

5b. Percent Problems

Solve each problem. Round to the nearest tenth if needed. $\frac{\text{is}}{\text{of}} = \frac{\%}{100}$

109. What percent of 126 is 22? $\frac{22}{126} = \frac{x}{100}$ $\approx 17.5\%$

110. 25.7 is what percent of 141? $\frac{25.7}{141} = \frac{x}{100}$ $\approx 18.2\%$

111. 62% of what is 89.3? $\frac{62}{100} = \frac{89.3}{x}$ $x \approx 144$

112. 17% of what is 156? $\frac{17}{100} = \frac{156}{x}$ ≈ 917.6

113. 30% of 117 is what $\frac{30}{100} = \frac{x}{117}$ ≈ 35.1

114. 120% of 118 is what? $\frac{120}{100} = \frac{x}{118}$ $x = 141.6$

5c. Percent Change

Find each percent of increase of decrease. Round to the nearest tenth of a percent. $\frac{\text{change}}{\text{original}} = \frac{\%}{100}$

115. From 82 to 38 $\frac{44}{82} = \frac{x}{100}$ 53.7%

116. From 33 to 47 $\frac{14}{33} = \frac{x}{100}$ 42.4%

117. From 8 to 4 $\frac{4}{8} = \frac{x}{100}$ 50%

118. From 63 to 98? $\frac{35}{63} = \frac{x}{100}$ 55.6%

5d. Mark -up, Discount, and Tax Problems

Find the selling price of each item. Round to the nearest cent if needed.

119. Cost of a sled = $99.50, markup = 95%

$\frac{195}{100} = \frac{x}{99.5}$ $194.03

120. Cost of an oil change: $18, markup = 70%

$\frac{170}{100} = \frac{x}{18}$ $30.60

121. Original price of a book = $18.50, discount = 45%

$\frac{55}{100} = \frac{x}{18.50}$ $10.18

122. Original price of a camera = $554.99, discount = 60%

$\frac{40}{100} = \frac{x}{554.99}$ $222

123. Cost of a new mixer = $249, tax = 9.75%

$\frac{109.75}{100} = \frac{x}{249}$ $273.28

5e. Classify Numbers

124. Use checks to show whether or not the given number belongs in the set. A check mark indicates the number is a member of the set.

	Natural	Whole	Integer	Rational	irrational
25	✓	✓	✓	✓	
-14			✓	✓	
$\frac{5}{7}$				✓	
0.32				✓	
$\sqrt{8}$					✓
$9.3\overline{9}$				✓	