

HP ALGEBRA I

SUMMER PACKET



Name: _____ Period: _____

The purpose of this packet is to both convey to students the foundational skills needed to be successful in this course and to provide them an opportunity to self-assess and develop these skills before entering the class. In order to be successful in this and all subsequent math courses at Servite, students must master and retain the content and skills from all previous math classes. As such, we ask that you please work on this assignment with integrity and diligence always striving to meet the intended purpose and goal of this assignment.

Before beginning the HP Algebra 1 class you must be able to:

- Understand and apply factoring, multiples, and divisibility rules.
- Add/subtract/multiply/divide negative numbers.
- Add/subtract/multiply/divide fractions, percents and decimals.
- Solve for perimeter and area of quadrilaterals and triangles.
- Solve for circumference and area of circles.
- Translate between words and algebra
- Evaluate algebraic expressions
- Solve equations in one variable.
- Use distributive property
- Calculate absolute value

Directions: Please print this packet. You **must show all work** in the space provided. You **may not** use a calculator. For every word problem, write your answer in the form of a sentence. After you make an honest attempt at each problem, check your answer. If your answer is incorrect, try to identify where you went wrong, review the topic, and redo the problem correctly.

This packet will be **collected** on the **second day** of school, and you will be given a homework grade for completing it. Per Servite School policy, if this packet is not turned in on the second day of school, you will receive half credit if it is turned in the following day. After that, you will receive a zero for this packet. An assessment will be given at the beginning of the school year to make sure you have mastered all pre-requisites and will count as a quiz grade. If you earn less than a 75% on the assessment, a meeting with the counseling staff will be held to reevaluate your goals and potential success in the course.

Have a great summer and we are looking forward to seeing you in August!

I understand that I have to show all my work and cannot use a calculator.

(Student Signature)

(Date)

I have checked to see that my child has showed all work and completed all problems without the use of a calculator.

(Parent/Guardian Signature)

(Date)

Simplify. Write as an improper fraction. Show all work for credit.

1. $\frac{11}{5} + \frac{7}{3} =$

2. $\frac{8}{7} - \frac{1}{9} =$

3. $5 - \frac{9}{4} =$

4. $\frac{6}{12} + \frac{7}{8} =$

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

6. $3\frac{1}{6} - 5\frac{3}{4} =$

7. $\left(\frac{4}{5}\right)\left(\frac{15}{16}\right) =$

8. $6 \cdot \frac{4}{9} =$

9. $12 \div \frac{1}{4} =$

10. $\frac{9}{8} \div \frac{3}{8} =$

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

12. $-2\frac{5}{9} \div 3 =$

13. Bob ate $\frac{2}{3}$ of a pizza that had 12 pieces. How many pieces did Bob eat?

14. Kyle rode his bike $1\frac{3}{4}$ of a mile to the store. He then rode his bike $2\frac{1}{2}$ miles to his friend's house. How far did he ride altogether?

15. Joshua walked $3\frac{1}{4}$ miles on Tuesday and $4\frac{2}{3}$ miles on Thursday. How many more miles did he walk on Thursday than Tuesday?

Write the following as a decimal.

16. $\frac{19}{20} =$

17. $1\frac{1}{50} =$

18. $\frac{3}{4} =$

19. Robert came in first for $\frac{1}{5}$ of his races. Express the fraction as a decimal.

Solve for each variable.

20. $w + \frac{1}{5} = \frac{7}{8}$

21. $h + \frac{3}{8} = -\frac{1}{4}$

22. $15\frac{3}{4} = t + 4\frac{5}{8}$

23. $6a = \frac{5}{7}$

24. $\frac{3}{7}h = 9$

25. $\frac{2}{7}a = \frac{8}{5}$

26. $-\frac{1}{3}p = \frac{3}{5}$

27. Mr. Edwards needs a shelf to hold a set of books. Each book is $1\frac{1}{4}$ in. wide. Write and solve an equation to find how many books will fit on a 35 in. long shelf.

28. Lisa earned \$6.25 per hour at her after-school job. Each week she earned \$50. Write and solve an equation to show how many hours she worked each week.

29. When you receive a loan to make a purchase, you often must make a down payment in cash. The amount of the loan is the purchase cost minus the down payment. Riva made a down payment of \$1500 on a used car. She received a loan of \$2600. Write and solve an equation to find the cost of the car. Show that the answer is reasonable.

Simplify each expression.

30. $-14 + 22 =$

31. $-55 - 18 =$

32. $65 - 119 =$

33. $13 - (-34) =$

34. $(-12)(4) =$

35. $(-16)(-3) =$

36. $\frac{-72}{8} =$

37. $\frac{6+4}{3}$

38. $10.8 - 4.73 =$

39. $-4.79 - 0.4 =$

40. $-7.1 + 3.63 =$

41. $(-7.5)(9)(-8.3) =$

42. $(5.5)(-4.87) =$

43. $\frac{1.5}{-0.03} =$

44. $\frac{-82}{-0.2} =$

45. A restaurant has the following profits and losses over a 3-month period: April: -\$3,515; May: -\$5,674; June: \$8,993. What was the company's overall profit or loss?

Solve the equation.

46. $2x - 26 = 10$

47. $-6 + 3x = -9$

48. $\frac{x}{5} + 9 = 4$

49. $-3x + 6 = -9$

50. $x + 7 = 6x - 3$

51. $x - 9 = -6x + 5$

52. $-6p - 21 = 3p - 12$

53. $\frac{1}{4}y - 3 = 9$

54. $-5n - 8(1 + 7n) = -8$

55. $8 = 8v - 4(v + 8)$

56. $24a - 22 = -4(1 - 6a)$

57. $2(x + 4) - 5 = 2x + 3$

58. If $-3(y - 1) = 9$, find the value of $\frac{1}{2}y$. 59. If $4 - 7x = 39$, find the value of $x + 1$.

60. Four friends dining in a restaurant decide to split the bill evenly between them. Each person will pay \$9.45. How much is the total bill?

61. A house-painting company charges \$376 plus \$12 per hour. Another painting company charges \$280 plus \$15 per hour.

a) How long is a job for which both companies will charge the same amount?

b) What will that cost be?

62. A hardware store will rent a lawn mower for \$6 per hour with a \$10 rental fee, or it can be rented for \$46 per day with no hourly fee. Under what circumstance would it be better to rent per hour?

Simplify the expression.

63. $3^3 =$

64. $(-6)^2 =$

65. $-6^2 =$

66. $2^5 =$

67. The floor of a room is 14 feet long by 14 feet wide. How many square feet of carpet are needed to cover the floor?

Evaluate the expression.

68. $x - 4$, when $x = -1$

69. $-x + 6$, when $x = 9$

70. $x^2 + 3$, when $x = 5$

71. $-x^2 - 1$, when $x = -4$

72. $-x^2 + x$, when $x = -2$

73. $\frac{x-5}{x}$, when $x = 10$

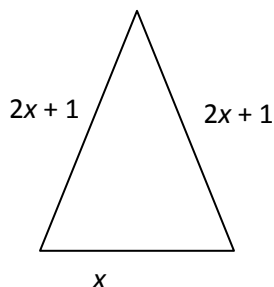
74. $\sqrt{x} + 2\sqrt{y} + 3\sqrt{xy}$, when $x = 4$, $y = 9$.

75. $2[x + x(3y - x)]$, when $x = 3$, $y = 2$.

76. $2|x + 1| - 4$, when $x = -5$

77. $\frac{1}{3}|x|$, when $x = -12$

78. **Find the perimeter of the triangle below.**



Evaluate:

79. $3x^2 + (2y + z^2)$, when $x = 4$, $y = 5$, $z = 3$. 80. $\frac{2a - b^2}{ab} + \frac{c - a}{b^2}$, when $a = 8$, $b = 4$, $c = 16$

Simplify each expression using the order of operations.

81. $-14 \div 6 \cdot 3 =$

82. $(8 - 2)^2 + 9 =$

83. $3^3 - 16 \div 2 + 1 =$

84. $4 \cdot 2 \div (50 - 2) =$

85. $-3^2 + 3 - 4 =$

86. $-5 + 2(4 \div 8) =$

87. $\frac{3^3 + 8 - 7}{2 \cdot 7} =$

88. $\frac{5^2 \cdot 2}{1 + 6^2 - 12} =$

89. $12 + 3[4(8 - 6) + 5(4 + 2)] =$

90. $(2 + \sqrt{9})^2 + 5(\sqrt{64} - \sqrt{16})^2 =$

Simplify each expression using the distributive property.

91. $4(x - 2) =$

92. $-(x - 7) =$

93. $-5(2x + 3) =$

Simplify by combining like terms. Write each polynomial in standard form.

94. $2x + 4x - 3x =$

95. $-x + 2 + 8x =$

96. $-3(x - 8) - 4x$

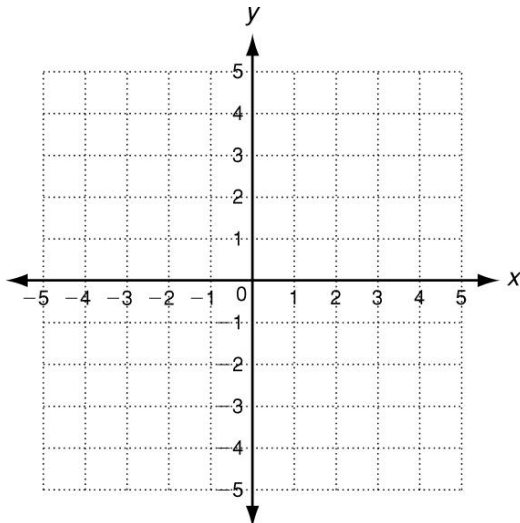
97. $12x^3 - 11x^2 + 2x + 8x^3 - 3x - 1$

98. $x^2 + 2y^2 - 4x^2 - y^2 =$

Graph the coordinates and connect to create a line.

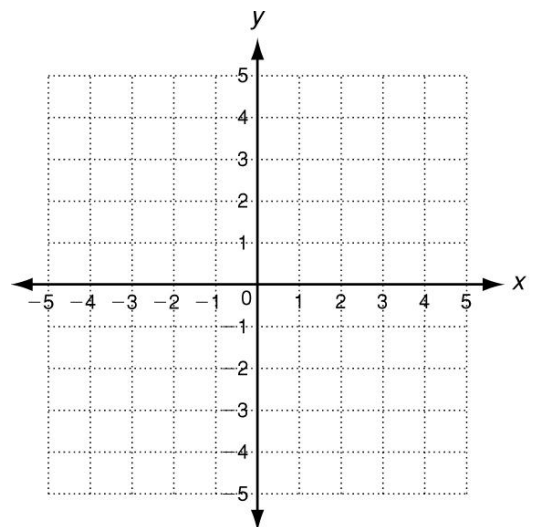
99.

x	y
-1	-1
0	1
1	3



100.

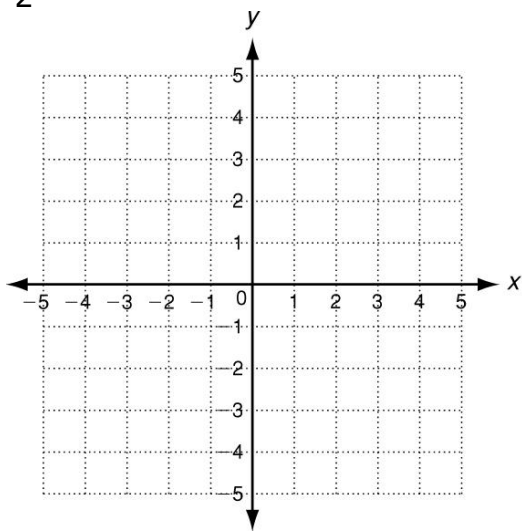
x	y
-3	-3
0	-4
3	-5



Graph the equation using the table of values.

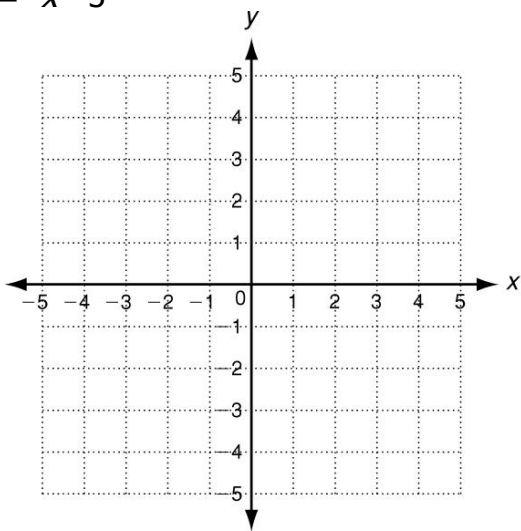
101. $y = 3x + 2$

x	y



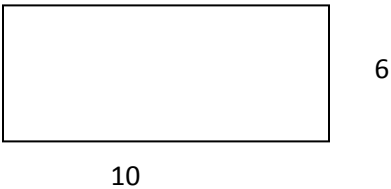
102. $y = -x - 3$

x	y



Find the area and the perimeter/circumference of the following shapes. Make sure to use proper units where applicable. You may leave some answers in terms of π .

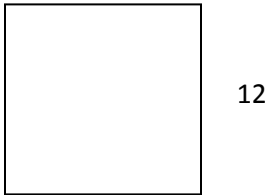
103. Rectangle



Perimeter:

Area:

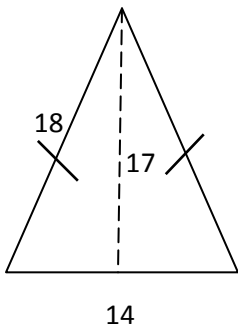
104. Square



Perimeter:

Area:

105. Isosceles Triangle:

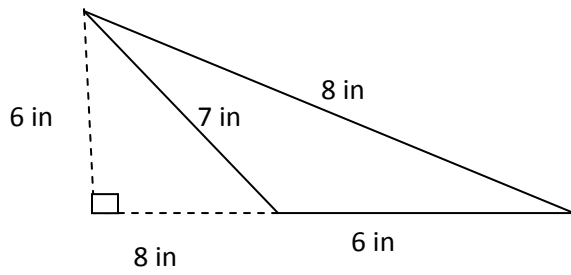


Perimeter:

Area:

106. Triangle

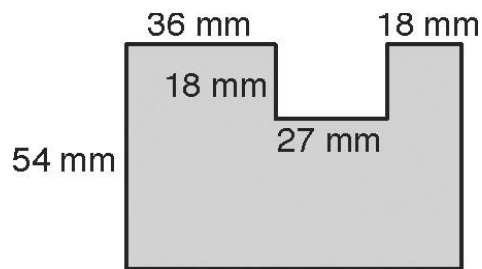
Perimeter:



Area:

107. Composite shape

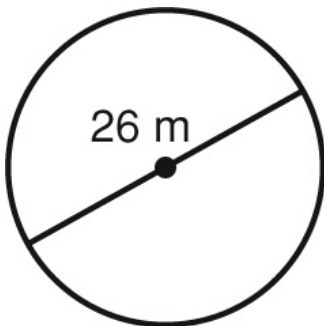
Perimeter:



Area:

108. Circle

Circumference:



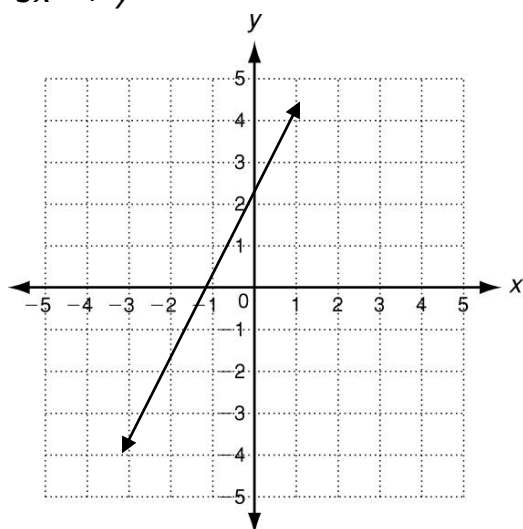
Area:

Answers:

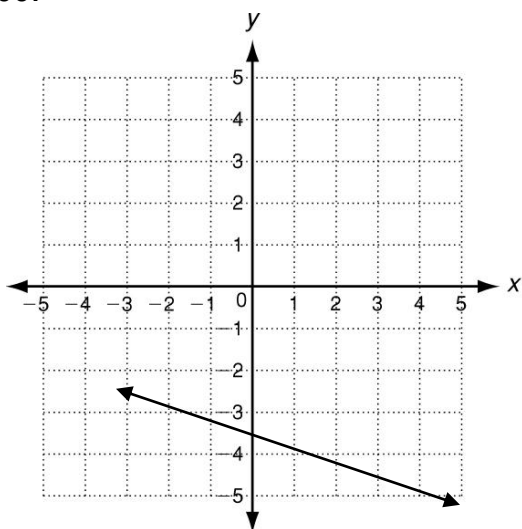
1. $68/15$
2. $65/63$
3. $11/4$
4. $11/8$
5. $-124/15$
6. $-31/12$
7. $3/4$
8. $8/3$
9. 48
10. 3
11. $77/20$
12. $-23/27$
13. 8 pieces
14. $4 \frac{1}{4}$ miles
15. $1 \frac{5}{12}$ miles
16. .95
17. 1.02
18. .75
19. .2
20. $27/40$
21. $-5/8$
22. $11 \frac{1}{8}$
23. $5/42$
24. 21
25. $28/5$
26. $-9/5$
27. $1.25x=35$; 28 books
28. $6.25x=50$; 8 hours
29. $L=P-d$; \$4,100
30. 8
31. -73
32. -54
33. 47
34. -48
35. 48
36. -9
37. $10/3$
38. 6.07
39. -5.19
40. -3.47

41. 560.25
42. -26.785
43. -50
44. 410
45. Loss of \$196
46. 18
47. -1
48. -25
49. 5
50. 2
51. 2
52. -1
53. 48
54. 0
55. 10
56. No solution
57. All real numbers
58. -1
59. -4
60. \$37.80
61. A. 32 hours B. \$760
62. Less than 6 hours
63. 27
64. 36
65. -36
66. 32
67. 196 sq ft
68. -5
69. -3
70. 28
71. -17
72. -6
73. $\frac{1}{2}$
74. 26
75. 24
76. 4
77. 4
78. $5x + 2$ units
79. 67
80. $\frac{1}{2}$
81. -7

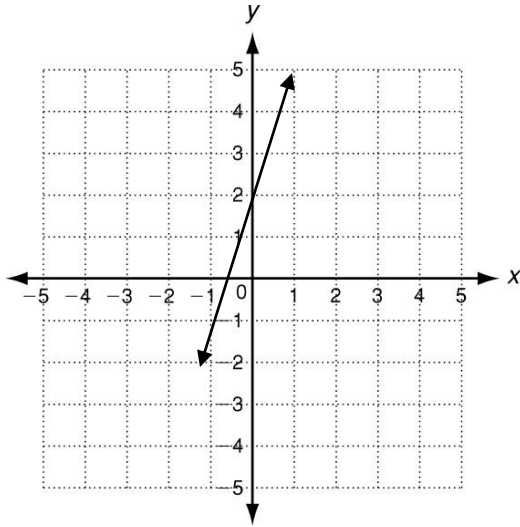
82. 45
83. 20
84. $\frac{1}{6}$
85. -10
86. -4
87. 2
88. 2
89. 126
90. 105
91. $4x - 8$
92. $-x + 7$
93. $-10x - 15$
94. $3x$
95. $7x + 2$
96. $-7x + 24$
97. $20x^3 - 11x^2 - x - 1$
98. $-3x^2 + y^2$



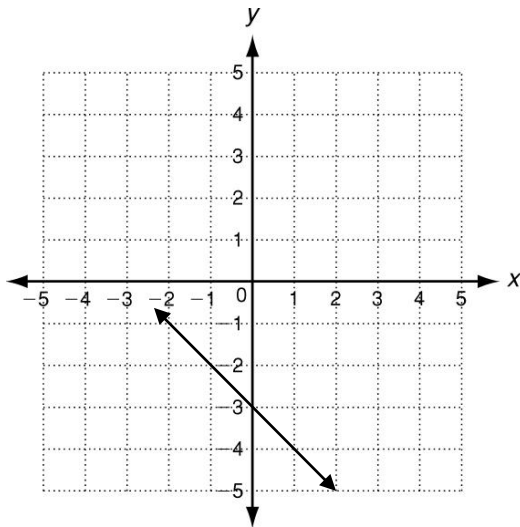
- 99.
- 100.



101.



102.



103. Perimeter: 32 units; Area: 60 sq. units

104. Perimeter: 48 units; Area: 144 sq. units

105. Perimeter: 50 units; Area: 119 sq. units

106. Perimeter: 21 inches; Area: 18 sq. inches

107. Perimeter: 306 mm; Area: 3,888 sq. mm

108. Circumference: 26π meters; Area: 169π sq. meters