Math Maintenance Assignment

Welcome to Honors Algebra 1! In order to ensure success in this course, there is a mandatory summer assignment packet. This packet is due on the first day of your math class whether it occurs in first or second semester. While it is best to not put the assignment off to the last minute, you want to complete the assignment close enough to the start of your course so that the ideas are fresh. There will be an assessment on this material the first week of class, after the packet has been reviewed.

All topics in this assignment should be a review. You should not only be familiar with the topics but you should know them well enough to be tested on them. This is material that will not be taught in the course. It is expected that you come in with a strong understanding of these topics. If you are unsure of how to do these problems, feel free to seek help with them. There are many websites with helpful videos including Khan Academy, YouTube, Math is fun.com, Purple Math.com, shmoop.com, and Algebrahelp.com.

Give us your best work while giving yourself the opportunity to get off to a great start! We look forward to having you in class!

Sincerely,
The Math Department

Section 1: Order of Operations

Evaluate and simplify each expression. Be sure to follow proper order of operations.

1. $2^4 - 3(3^2 - 8)$

2. $10 + 8^3 \div 16$

3. $(-2)^3 - (2 - 5^2)$

4. $18 \div 9 + 2 \cdot 6$

5. $3[10 - (27 \div 9)]$

6. $4[(6^3 - 9) \div 23]$

7. $\frac{48-24\div 2^3}{3+2\cdot 6}$

8. $3[4 - 8 + 4^2(2 + 5)]$

9. $25 + \left[(16 - 3 \cdot 5) + \frac{12+3}{5}\right]$

10. $\frac{14-6^2}{8-2^3}$

Section 2: Fractions

Find each sum or difference. Write your answer in simplest form. When necessary, leave as an improper fraction.

11. $\frac{2}{3} + \frac{7}{8}$

12. $\frac{13}{20} - \frac{2}{5}$

13. $\frac{5}{6} - \frac{8}{9}$

14. $-\frac{4}{13} - \frac{-2}{3}$

15. $2\frac{2}{5} - 3\frac{1}{4}$

16. $-2\frac{1}{4} - \frac{1}{3}$

Find each product. Write your answer in simplest form. When necessary, leave as an improper fraction.

17. $\frac{3}{5} \cdot \frac{5}{6}$

18. $\frac{11}{3} \cdot \frac{9}{44}$

19. $3\frac{1}{2} \cdot 1\frac{1}{2}$

20. $-\frac{2}{7} \cdot 4\frac{2}{3}$

21. $-\frac{1}{3} \cdot -7\frac{1}{2}$

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

Find each quotient. Write your answer in simplest form. When necessary, leave as an improper fraction.

23. $\frac{3}{25} \div \frac{2}{15}$

24. $2\frac{1}{4} \div \frac{1}{2}$

25. $-\frac{9}{10} \div 3$

Section 3: Real Number Comparison

Use $<$, $>$, or $=$ to compare the numbers.

26. -12 _____ -15

27. 0.63 _____ 0.6

28. 0.88 _____ $\frac{8}{9}$

29. $\frac{2}{3}$ _____ $\frac{1}{6}$

30. $\frac{3}{4}$ _____ $\frac{12}{16}$

31. $-2\frac{5}{8}$ _____ $-2\frac{1}{2}$

Section 4: Rounding Numbers

Round the following numbers to the tenth place.

32. 18.4294

33. 3.0509

34. 15.8645

35. 17.9801

Round the following numbers to the hundredth place.

36. 25.0543

37. 36.9913

38. 0.2658

39. 9.9951

Section 5: Variables and Verbal Expressions

Write an algebraic expression for each phrase.

40. 7 increased by x

41. The difference of 8 and n

42. The product of 2 and t

43. 10 decreased by m

44. 32 divided by d

45. 12 less than p

46. The sum of 7 and h

47. 9 plus the quotient of y and 15

Section 6: Evaluating Algebraic Expressions

Evaluate each expression.

48. xy for $x = 3,\ y = 16$

49. $n + 2$ for $n = -7$

50. $10 - r + 5$ for $r = 23$

51. $t + u \div 6$ for $t = 12,\ u = 18$

52. $4p - 26$ for $p = 10$

53. $m^2 - 7$ for $m = 11$

54. $3ab - c$ for $a = -4,\ b = 2,\ c = 5$

55. $\frac{ab}{2} - 4c$ for $a = 6,\ b = 5,\ c = 3$

Section 7: Solving One-Step Equations

Evaluate each expression.

56. $37 = x - 72$

57. $-6p = 18$

58. $d + 1.5 = 3.7$

59. $102 + t = 36$

60. $\frac{2}{3}y = 8$

61. $\frac{h}{7} = -12$

62. $\frac{3}{5}g = -6$

63. $\frac{1}{4}m = \frac{5}{8}$

64. $-9 + a = -5$

65. $x - 7.2 = -3.1$

Section 8: Measures of Central Tendency

In working with statistical data, it is often useful to determine a single quantity that best describes a set of data. The best quantity to choose is usually one of the most popular measures of central tendency: mean, median, mode, or range.

Mean The mean is the sum of the data items in a set divided by the number of data items in the set.

Median The median is the middle value in a set of data when the numbers are arranged in numerical order. If the set has an even number of data items, the median is the mean of the two middle data values.

Mode The mode is the data item that occurs most often in a set of data. If no number repeats more than once, there is No Mode.

Range The range is the difference between the greatest and least values in a set of data.

Example

Set of data: $34, 46, 31, 40, 33, 40, 35$

In order: $31, 33, 34, 35, 40, 40, 46$

Mean	$\frac{31+33+34+35+40+40+46}{7}$	Answer: 37
Median	35 is the middle number when written in numerical order	Answer: 35
Mode	40 is the only number that occurs more than once	Answer: 40
Range	$46 - 31$	Answer: 15

Find the mean, median, mode, and range of each set of data.

66. Daily sales from a store are $\$834, \$1099, \$775, \$900$, and $\$970$.

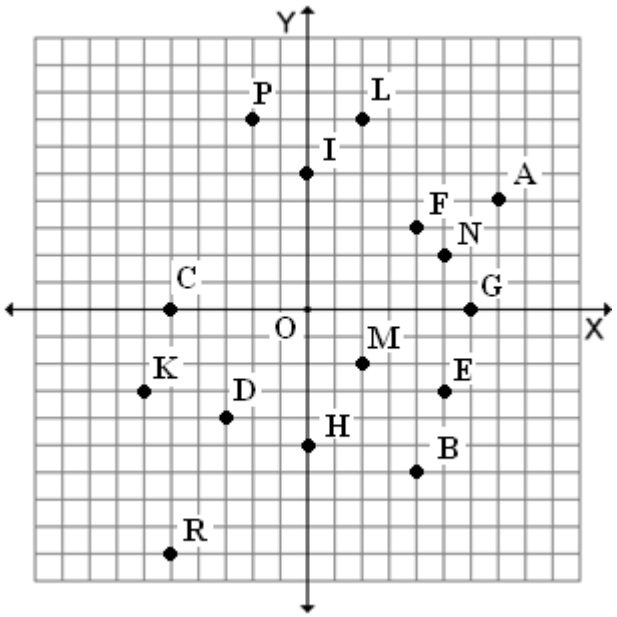
67. Goals scores in soccer games are $3, 2, 0, 11, 7, 6, 4$, and 10.

68. The number of days above $50°$ in the last 5 months are $6, 8, 15, 22$, and 8.

69. The heights of players on a basketball team (in inches) are $72, 74, 70, 77, 76$, and 72.

Section 9: Plotting on the Coordinate Plane

List the ordered pair for each letter, then identify the quadrant or axes the point lies in.



70. C

71. A

72. M

73. P

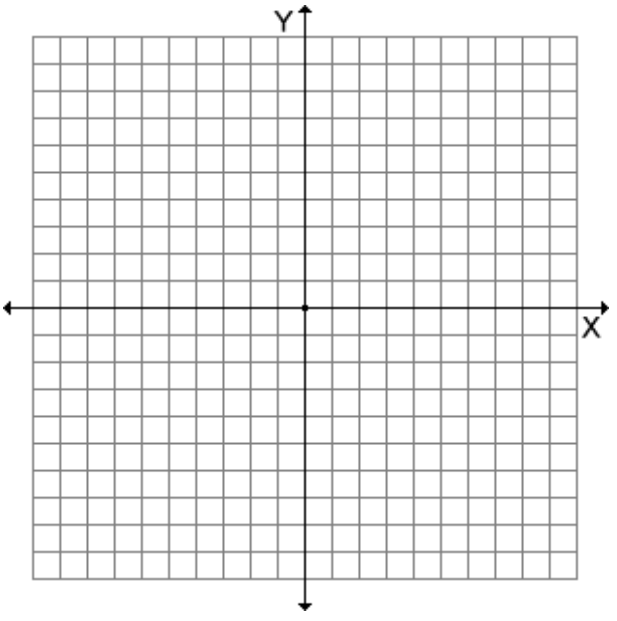
74. F

75. I

76. R

77. E

Plot and label the following ordered pairs.



78. $A = (-8, 6)$

79. $B = (6, -1)$

80. $C = (-5, -7)$

81. $D = (4, 9)$

82. $E = (2, -3)$

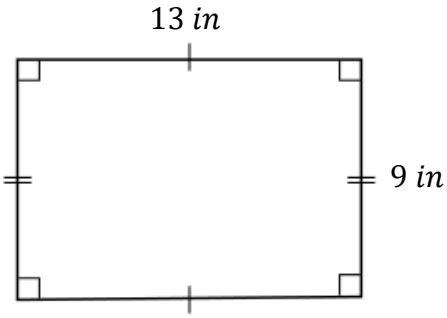
83. $F = (-4, 0)$

84. $G = (0, 7)$

Section 10: Perimeter, Area, and Circumference

Find the perimeter and area of each figure.

85.



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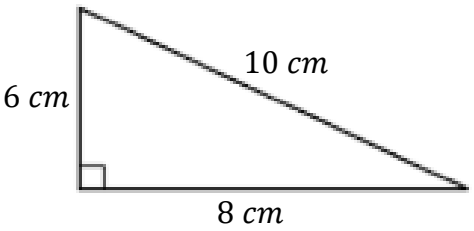

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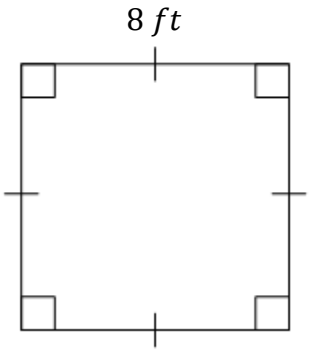

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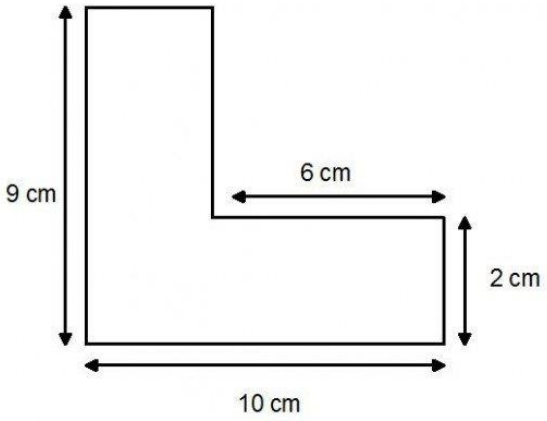
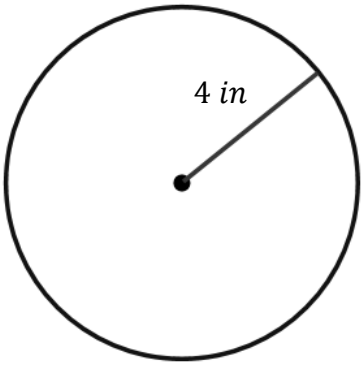


Find the circumference and area of each circle. Leave π in your answer.

89.



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