

13. $\frac{-144}{12} = \underline{-12}$

14. $-53 + 20 + -7 + -14 + 13 = \underline{\hspace{2cm}}$

15. $(0)(-24) = \underline{0}$

16. $-137 - 45 = \underline{\hspace{2cm}}$

17. $0 \div -12 = \underline{0}$

Absolute Value

Absolute Value - the distance a number is from zero on the number line.

Ask yourself: How far is the number from zero?

$|31| = 31$

$|-16| = 16$

$|-12 + 8| = |-4| = 4$

18. $|-1234| = \underline{\hspace{2cm}}$

19. $|97| = \underline{97}$

20. $|20 + -25| = \underline{\hspace{2cm}}$

21. $|-7| + |13| = \underline{20}$
 $7 + 13$

Order of Operations

Parentheses (), Brackets [], Braces { }

Exponents

M
D > Multiply and divide from left to right

A
S > Add and subtract from left to right

22. $12 \div 3 + 12 \div 4 = \underline{\hspace{2cm}}$

23. $(21 \div 7 + 4) \cdot 11 = \underline{77}$
 $(3 + 4) \cdot 11$
 $7 \cdot 11$
 77

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24. $96 \div 12(4) \div 2^2 =$ _____

25. $\frac{86-11}{9+6} = \underline{5}$

$\frac{75}{15}$

26. $6 + 5^2 - 2 =$ _____

27. $7[(12 + 5) - 3(4)] = \underline{35}$

$7[(17-12)]$
 $7[5]$

28. $144 \div 16 \cdot 9 \div 3 =$ _____

29. $-15 \div 8 + -4 \div 6 = \underline{-21}$

$-23 + -4 + 6$
 $-27 + 6$
 -21

30. $(20 - 9 + 28 - 17 + 7 - 24)^2 \div (99 \div 33 + 2) =$ _____

31. $(-72 \div 9)(-15 \div -5) = \underline{-24}$
 $(-8)(3)$

32. $-6[7 - (-225 \div 15) \cdot 3] =$ _____

33. $(5 + -18 \cdot 2)(16 - 4^2) = \underline{0}$
 $(5 + -36)(16 - 16)$
 $(-31)(0)$

34. $\frac{-36 \div 2^2}{67 - 70} =$ _____

35. $40 \div 8 - 3 \cdot 5 + 7 = \underline{-3}$
 $5 - 15 + 7$
 $-10 + 7$
 -3

Fractions

Adding and Subtracting Fractions

- Change all mixed and whole numbers to improper fractions if necessary.
- Find a common denominator.
- Add/subtract the numerators.
- Simplify your answer.

Example: $\frac{1}{6} + \frac{1}{3} = \frac{1}{6} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$

$1\frac{1}{2} - \frac{7}{8} = 1\frac{4}{8} - \frac{7}{8} = \frac{12}{8} - \frac{7}{8} = \frac{5}{8}$

Multiplying and Dividing Fractions

- Remember, when multiplying and dividing fractions there is no need to have a common denominator.
- Change all whole and mixed numbers to improper fractions.
- If it is a division problem, don't forget to change it to multiplication, and flip the 2nd fraction.
- Cross cancel then multiply.

$2\frac{1}{4} \cdot \frac{2}{3} = \frac{9}{4} \cdot \frac{2}{3} = \frac{9}{\cancel{4}^3} \cdot \frac{\cancel{2}^1}{3} = \frac{3}{2} = 1\frac{1}{2}$

Example:

$3\frac{2}{3} \div 4\frac{1}{2} = \frac{11}{3} \div \frac{9}{2} = \frac{11}{3} \cdot \frac{2}{9} = \frac{22}{27}$

36. $\frac{7}{8} - \frac{5}{6} = \underline{\hspace{2cm}}$

37. $3\frac{1}{6} + \frac{5}{12} = \underline{3\frac{7}{12}}$

$3\frac{2}{12} + \frac{5}{12}$

38. $-\frac{8}{16} + \frac{3}{4} = \underline{\hspace{2cm}}$

39. $6\frac{1}{2} + -2 = \underline{4\frac{1}{2}}$

40. $-\frac{6}{5} \cdot -\frac{5}{6} = \underline{\hspace{2cm}}$

41. $5 \cdot 2\frac{4}{5} = \underline{14}$
 $\frac{5}{1} \cdot \frac{14}{5}$

42. $-\frac{6}{7} \cdot \frac{1}{4} \cdot \frac{2}{5} = \underline{\hspace{2cm}}$

43. $\frac{3}{5} \div \frac{1}{5} = \underline{3}$
 $\frac{3}{5} \cdot \frac{5}{1}$

44. $2\frac{1}{2} \div -\frac{3}{4} = \underline{\hspace{2cm}}$

45. $-7 \div \frac{1}{2} = \underline{-14}$
 $\frac{-7}{1} \cdot \frac{2}{1}$

Ordering Fractions and Decimals

- Write the following numbers in order from least to greatest.
- It might be helpful to write all fractions with a common denominator or to use a number line.

46. $\frac{3}{8}, \frac{3}{4}, \frac{5}{6}, \frac{2}{3}$ _____

47. -6.404, -6.04, -6.044 -6.404, -6.044, -6.04

Adding and Subtracting Decimals

Adding and Subtracting Fractions

- Line up the decimal points and fill in zeros when needed.

48. $202.554 + 39.75 =$ _____

49. $3.056 - 2.678 =$ 0.378

$$\begin{array}{r} 2 \quad 9 \quad 4 \\ 3.056 \\ - 2.678 \\ \hline .378 \end{array}$$

50. $7.9 + -3.8 =$ _____

51. $1.5 + 3.4 =$ 4.9

$$\begin{array}{r} 1.5 \\ + 3.4 \\ \hline 4.9 \end{array}$$

Multiplying and Dividing Decimals

Multiplying and Dividing Decimals

- Multiplying decimals is the same as multiplying whole numbers. The key is to count the decimal places in each factor.
 - Step 1: Line up the digits (not the decimal points)
 - Step 2: Multiply as with whole numbers.
 - Step 3: Count the decimal places in the problem. The product (answer) has the same number of decimal places.
- Dividing decimals is the same as dividing whole numbers. The key is to bring the decimal in the dividend straight up and divide as usual.

52. $-8.1 \cdot 4.5 =$ _____

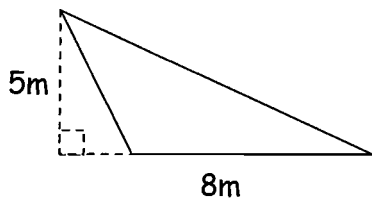
53. $4 \overline{)18.4}$

$$\begin{array}{r} 4.6 \\ 4 \overline{)18.4} \\ - 16 \\ \hline 24 \end{array}$$

Basic Geometry

Use the formula sheet to find the area AND perimeter of each shape. Round to the nearest hundredths when necessary. Use 3.14 for π (pi).

Example:



Triangle

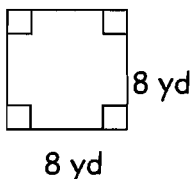
$$A = \frac{1}{2} b h$$

$$A = \frac{1}{2} \cdot 8 \cdot 5$$

$$A = 20 \text{ m}^2$$

54. $A = \underline{\hspace{2cm}}$

55. $P = \underline{32 \text{ yd.}}$



$$P = 4s$$

$$P = 4 \cdot 8$$

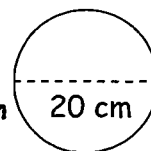
$$P = 32 \text{ yd}$$

56. $d = \underline{\hspace{2cm}}$

$A = \underline{\hspace{2cm}}$

57. $r = \underline{10 \text{ cm}}$

$C = \underline{62.8 \text{ cm}}$



$$C = \pi d$$

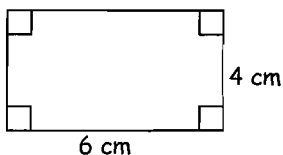
$$C = 3.14(20)$$

$$3.14$$

$$\begin{array}{r} \times 20 \\ \hline 62.80 \end{array}$$

58. $P = \underline{\hspace{2cm}}$

59. $A = \underline{24 \text{ cm}^2}$



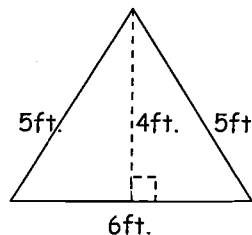
$$A = lw$$

$$A = 6 \cdot 4$$

$$A = 24 \text{ cm}^2$$

60. $P = \underline{\hspace{2cm}}$

61. $A = \underline{12 \text{ ft}^2}$



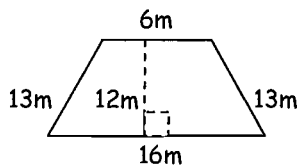
$$A = \frac{1}{2} b h$$

$$A = \frac{1}{2} \cdot 6 \cdot 4$$

$$A = 12 \text{ ft}^2$$

62. $A = \underline{\hspace{2cm}}$

63. $P = \underline{48 \text{ m}}$



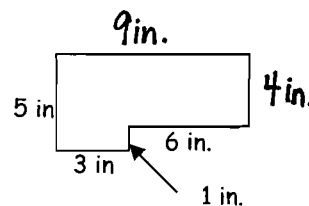
$$P = 6 + 13 + 16 + 13$$

$$P = 19 + 29$$

$$P = 48 \text{ m}$$

64. $A = \underline{\hspace{2cm}}$

65. $P = \underline{28 \text{ in}}$



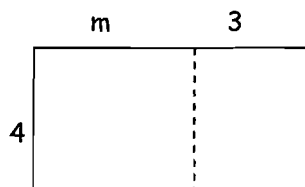
$$P = 9 + 5 + 3 + 1 + 6 + 4$$

$$P = 14 + 4 + 10$$

$$P = 28 \text{ in}$$

Distributive Property

Multiply the number on the outside of the parentheses by each term inside the parentheses. Don't forget the rules for negatives! Draw rectangles or arrows if you need to.



$$4(m + 3) = 4m + 12$$

66. $10(a - 4) =$ _____

67. $7(x + y) =$ $7x + 7y$

68. $-4(k + -9) =$ _____

69. $3(-7x - 5) =$ $-21x - 15$

70. $20(5y - -6) =$ _____

71. $-8(11r - 9s) =$ $-88r + 72s$

72. $\frac{1}{2}(48x - 25t) =$ _____

73. $5(4a + -10b - 6c) =$ $20a + -50b - 30c$

Miscellaneous

Mean - add up the values and divide by the number of values

Median - the middle value in an ordered set of values

Mode - the value that occurs the most

Range - the difference between the highest and lowest value in a set of data

- Use the following data set to complete the next four problems. Round to the hundredths place when necessary.

112, 117, 121, 112, 118, 118

74. Mean - _____

75. Median - 117.5

$$\begin{array}{ccccccc} 112 & 112 & 117 & 118 & 118 & 121 & \\ & & \downarrow & & & & \\ & & 117.5 & & & & \end{array}$$

76. Mode - _____

77. Range - 9

$$\begin{array}{r} 121 \\ - 112 \\ \hline 9 \end{array} \qquad 112 \rightarrow 121$$

- Suppose you have a bag of 20 marbles - 2 blue, 4 red, 8 yellow, 6 green. Use this information to complete the following 3 problems. Write each answer as a fraction, decimal, and percent.

78. What is the probability of red? _____

79. What is the probability of purple? 0 0 0%

80. What is the probability of blue or green? _____

Proportions

- To find the missing values, use scale factor or cross multiplication.

Find the missing value. Round to the nearest hundredth when necessary.

81. $\frac{3}{6} = \frac{n}{24}$ $n = 12$

↗ x4
↘ x4 ↗

82. $\frac{2.5}{4} = \frac{10}{x}$

83. $\frac{1}{2} = \frac{c}{7}$ $c = 3.5$

↗ x3.5
↘ x3.5

84. $\frac{5}{9} = \frac{n}{5.4}$

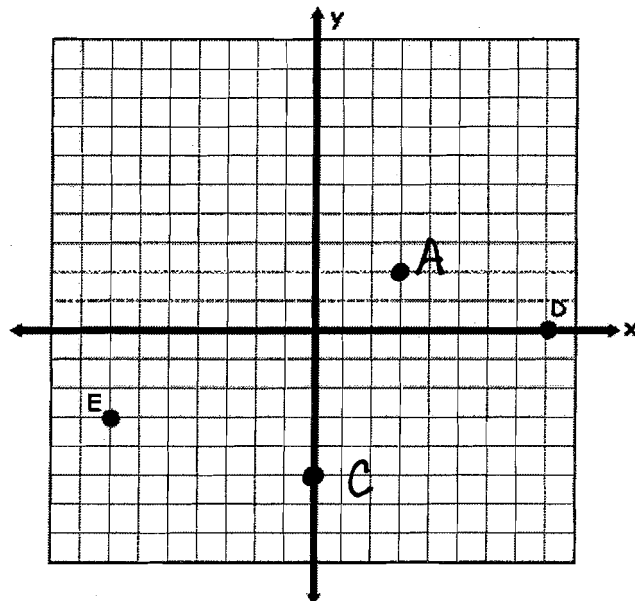
Coordinate Graphing

x-axis - horizontal axis
y-axis - vertical axis

Don't forget - (x,y)

Plot the following points on the graph.
Be sure to label your points with the letter.

85. A (3,2)
86. B (-4, 5)
87. C (0, -5)



Find the coordinates.

88. D (_____)
89. E (-7, -3)

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90. What are the coordinates of the origin? _____

91. What is the independent variable? X

92. What is the dependent variable? _____

3-Dimensional Geometry

93. If you are asked to cover a solid, you should find its surface area.

94. If you are asked to fill a solid, you should find its _____.

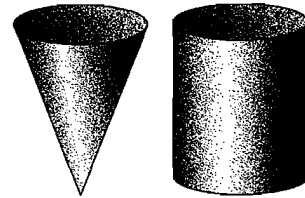
Use the formula sheet to find the surface area AND volume of each shape. Show all work including formulas used and values for each letter or symbol. Round to the nearest hundredths when necessary. Use 3.14 for π (pi).

The cylinder and cone each have a radius of 2 inches and a height of 8 inches. Find the volume of each.

95. Volume of cone: _____

$$V = \frac{1}{3}(\pi r^2 h) \quad V = \frac{1}{3}(100.48)$$

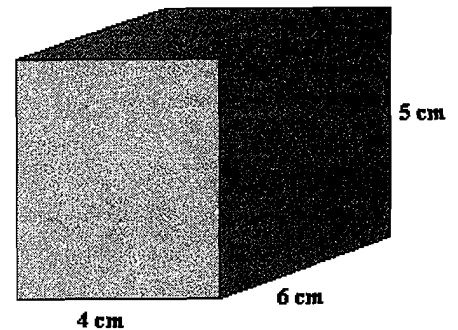
$$V = \frac{1}{3}(3.14 \cdot 2^2 \cdot 8) \quad V = 33.49 \text{ in}^3$$



96. Volume of cylinder: _____

97. The rectangular prism below had 6 faces, 12 edges, and 8 vertices. (How many of each?)

98. Find the surface area of the rectangular prism. _____



99. Find the volume of the rectangular prism. 120 cm³

$$V = lwh$$

$$V = 4 \text{ cm} \times 6 \text{ cm} \times 5 \text{ cm}$$

$$V = 120 \text{ cm}^3$$

100. Find the surface area of the square pyramid.

