Name _____

Integer Operations

Adding Integers

- If the signs are the same, add the numbers and keep the sign.
  7 + 9 = 16 -2 + -6 = -8
- If the signs are different, find the difference between the numbers and keep the sign of the number with the greater absolute value.
  5 + -11 = -6 -10 + 12 = 2

Subtracting Integers

- Change the subtraction to addition and the next number to its opposite. Then follow the rule for addition. (a.k.a. Add a line, change the sign.)
  6 – 4 → 6 + -4 = 2 -10 - -8 → -10 + 8 = -2

Multiplying and Dividing Integers

- Multiply or divide.
- If there are an odd number of negatives, your answer will be negative.
- If there is an even number of negative signs, your answer will be positive.
  -5 • -3 = 15 (-1)(5)(2) = -10

  -56 ÷ -8 = 7 $\frac{-16}{4} = -4$

1. 51 - -11 = _____

2. (-7)(6)(-4) = _____

3. 33 + -48 = _____

4. 240 ÷ -6 = _____

5. -24 • -52 = _____

6. -67 – 1 = _____

7. -5 + -13 = _____

8. -288 ÷ -24 = _____

9. -18 + -23 + 10 = _____

10. -27 - -27 = _____

11. -6 • -5 • -4 = _____

12. 15 - -28 – 63 – 14 = _____

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

14. -53 + 20 + -7 + -14 + 13 = _____

15. (0)(-24) = _____

16. -137 – 45 = _____

17. 0 ÷ -12 = _____

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| = _____

19. |97| = _____

20. |20 + -25| = _____

21. |-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 ÷ 3 + 12 ÷ 4 = _____

23. (21 ÷ 7 + 4) • 11 = _____

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

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

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

27. $7[(12 + 5) - 3(4)] =$ _____

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

29. $-15 - 8 + -4 - -6 =$ _____

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

31. $(-72 \div 9)(-15 \div -5) =$ _____

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

33. $(5 + -18 \bullet 2)(16 - 4^2) =$ _____

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

35. $40 \div 8 - 3 \cdot 5 + 7 =$ _____

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.

Example:

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

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

36. $\frac{7}{8}-\frac{5}{6}$ = _____

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

38. $-\frac{8}{16}+\frac{3}{4}$ = _____

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

40. $-\frac{6}{5}\bullet-\frac{5}{6}$ = _____

41. $5\bullet 2\frac{4}{5}$ = _____

42. $-\frac{6}{7}\bullet\frac{1}{4}\bullet\frac{2}{5}$ = _____

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

44. $2\frac{1}{2}\div-\frac{3}{4}$ = _____

45. $-7\div\frac{1}{2}$ = _____

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 _____

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 = _____

50. 7.9 + -3.8 = _____

51. 1.5 - -3.4 = _____

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.

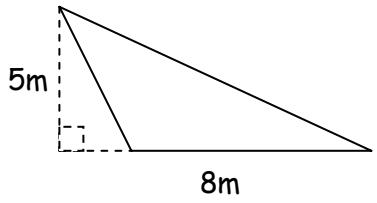
52. -8.1 • 4.5 = _____

53. $4\overline{)18.4}$

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

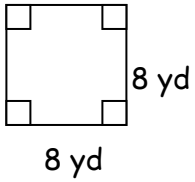
$A = \frac{1}{2} b h$

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

$A = 20\ m^2$

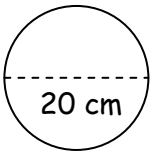
54. A = _____

55. P = _____



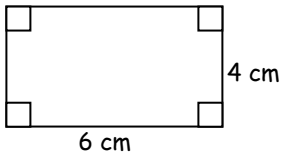
56. d = _____ A = _____

57. r = _____ C = _____



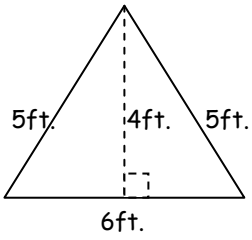
58. P = _____

59. A = _____



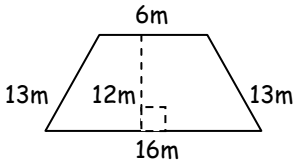
60. P = _____

61. A = _____



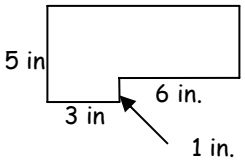
62. A = _____

63. P = _____



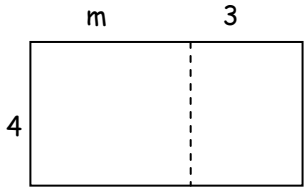
64. A = _____

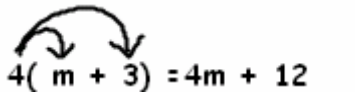
65. P = _____



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.





66. 10(a – 4) = _____

67. 7(x + y) = _____

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

69. 3(-7x – 5) = _____

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

71. -8(11r – 9s) = _____

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

73. 5(4a + -10b – 6c) = _____

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 - _____

76. Mode - _____

77. Range - _____

- 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? _____ _____ _____

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

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

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

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

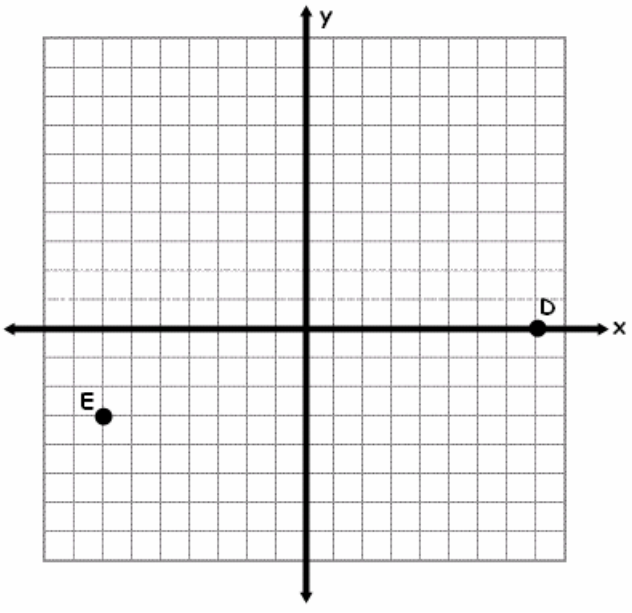
Coordinate Graphing

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 (_____)

90. What are the coordinates of the origin? _____

91. What is the independent variable? _____

92. What is the dependent variable? _____

3-Dimensional Geometry

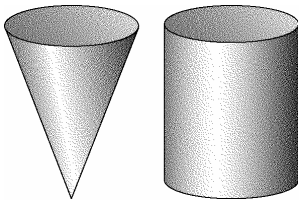
93. If you are asked to cover a solid, you should find its _____.

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.

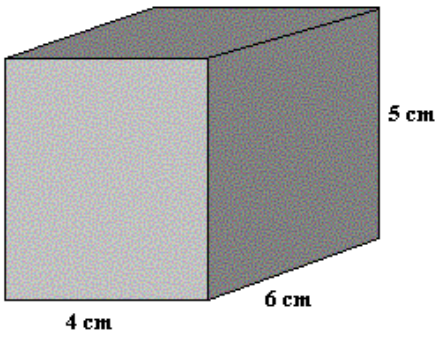
95. Volume of cone: _____



96. Volume of cylinder: _____

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

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



99. Find the volume of the rectangular prism. _____

100. Find the surface area of the square pyramid.