Worksheet - Review dimensional analysis and Significant figures

Name _____

Period_____

Date_____

I. Set up and solve the following using dimensional analysis.

1. 5,400 in to mi
2. 16 weeks to sec
3. 54 yards to mm
4. 36 cm/sec to mph
5. 1.09 g/mL to lbs/gal

6. 19 in^2 to ft^2
7. 840 in^3 to cm^3
8. 4.22 g/cm^3 to $lbs./ft^3$
9. 2.50 d/hr to kronin/wk (1 d = 8.60 krc)
10. 32 ft/sec^2 to $meters/min^2$

II. Rewrite the following numbers using scientific notation.

1. 476
2. 840,000
3. 0.0822
4. 540 x 10^3
5. 0.000040087

6. 0.0067 x 10^{-3}
7. 16
8. 0.446
9. 28 x 10^{-4}
10. 0.0062 x 10^5

III. How many significant figures are in each of the following numbers or answers to the following mathematical operations.

1. 16.0
2. 54,000
3. 54,000.0
4. 0.000107
5. 6,007

6. 14/ 3.07
7. 5.400 x 10^3/ 176
8. 1,874 x 36.2
9. 14/ 367
10. 176/ 1.4809 x 10^6

IV. Perform the following mathematical operations and express your answers to the proper number of significant figures.

1. 642 x (4.0 x 10^{-5})
2. 17/ 3.88 x 10^7
3. (2.9 x 10^{-5}) x (8.1 x 10^2)
4. (4.3 x 10^{-5})^3
5. 5.40 x 10^{-18}/ 769

6. 59 x (3.24 x 10^{-2})/ 4.80 x 10^4
7. 42 x (6.02 x 10^{23})/ .016
8. 12.0/ 6.02 x 10^{23}
9. 0.00000016/ 74.3
10. 10.0/ 54,600

V. Answer the following questions keeping in mind significant figures and dimensional analysis.

1. What is the density of an object that has a mass of 67.0 g and a volume of 14.7 mL?
2. What is the density of an object that has a mass of 17.0 g and is a cube with dimensions of 1.2 cm x 7.4 cm x 3.0 cm?
3. What volume will 88.0 g of an object with a density of 3.44 g/ mL occupy?
4. How many quarts will 15.0 lbs of a liquid with a density of 2.08 g/ mL occupy?
5. What will be the mass of 0.047 liters of a substance with a density of 8.73 g/ mL?