Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_

**Significant Figures I**

**For the following measurements, indicate how many significant figures (sf's) there are:**

1) 34 g \_\_\_ 2) 564 L \_\_\_ 3) 19.3 mm \_\_\_ 4) 23.45 mg \_\_\_ 5) 101 km \_\_\_

6) 3400 g \_\_\_ 7) 5040 L \_\_\_ 8) 19,000 mm \_\_\_ 9) 20 mg \_\_\_ 10) 160 km \_\_\_

11) 0.00034 g \_\_\_ 12) 0.564 L \_\_\_ 13) 0.0019 m\_\_\_ 14) 0.5 mg \_\_\_ 15) 0.12 km \_\_\_

16) 34.0 g \_\_\_ 17) 56.40 L \_\_\_ 18) 19.00 m \_\_\_ 19) 20.0 mg \_\_\_ 20) 8.200 m \_\_\_

21) 3400 g \_\_\_ 22) 2000 L \_\_\_ 23) 140 mm \_\_\_ 24) 19000 mg \_\_\_ 25) 6400 km \_\_\_

26) 800 g \_\_\_ 27) 800. L \_\_\_ 28) 10,900 mm\_\_\_ 29) 10.090 mg \_\_\_ 30) 803 km \_\_\_

31) 1,000,000 g\_\_\_ 32) 1,000,001 g\_\_\_ 33) 0.05060 m\_\_\_ 34) 56 mg \_\_\_

Ans #1-34: 1 1 1 1 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 5 7

**Indicate the # of sig figs for the following:**

35) 3.4 x 103 g \_\_\_ 36) 5.64 x108L \_\_\_37) 7 x 10-5mm\_\_\_38) 2.4 x 104 g \_\_\_ 39) 3.61 x 102 m\_\_\_

40) 3.0 x103 g \_\_\_ 41) 5.60 x108 L\_\_\_42) 2.04 x104 g\_\_\_43) 6.00x102 g\_\_\_ 44) 2.0 x100 m \_\_\_

Ans #35-44: 1 2 2 2 2 3 3 3 3 3

**Convert between scientific notation and regular notation, without changing the number of sig fig's:**

45) 5700 g = 5.7 x 103 g 51) 3.6 x 105 m = 360000 m

46) 14,000,000 m = \_\_\_\_\_\_\_\_\_\_\_\_ m 52) 3.6 x 10-5 m = \_\_\_\_\_\_\_\_\_\_\_\_\_ m

47) 2,000 cm = \_\_\_\_\_\_\_\_\_\_\_\_ cm 53) 3.60 x 105 m = \_\_\_\_\_\_\_\_\_\_\_\_\_ m

48) 2,000. cm = \_\_\_\_\_\_\_\_\_\_\_\_ cm 54) 6.00 x 101 kg = \_\_\_\_\_\_\_\_\_\_\_\_\_ kg

49) 0.000043 kg = \_\_\_\_\_\_\_\_\_\_\_\_ kg 55) 6.00 x 102 kg = \_\_\_\_\_\_\_\_\_\_\_\_\_ kg

50) 0.000230 mg = \_\_\_\_\_\_\_\_\_\_\_\_ mg 56) 3.25 x 103 L = \_\_\_\_\_\_\_\_\_\_\_\_\_L

Ans #46-56: 4.3 x 10-5, 0.000036, 2.30 x 10-4, 60.0, 600., 2 x 103, 2.000 x 103, 3250, 360000, 1.4 x 107

**Round each of the following off to the specified number of sig fig's:** (some have been done for you...)

57) Round 78.241 g to... 4 sf: 78.24 3 sf: \_\_\_\_\_\_\_\_\_\_ 2 sf: \_\_\_\_\_\_\_\_\_\_ 1 sf: \_\_\_\_\_\_\_\_\_

58) Round 4.2983 g to... 4 sf: \_\_\_\_\_\_\_\_\_\_ 3 sf: 4.30 2 sf: \_\_\_\_\_\_\_\_\_\_ 1 sf: \_\_\_\_\_\_\_\_\_

59) Round 373.99 g to... 4 sf: \_\_\_\_\_\_\_\_\_\_ 3 sf: \_\_\_\_\_\_\_\_\_\_ 2 sf: 370 1 sf: \_\_\_\_\_\_\_\_\_

60) Round 50,001 g to... 4 sf: \_\_\_\_\_\_\_\_\_\_ 3 sf: \_\_\_\_\_\_\_\_\_\_ 2 sf: \_\_\_\_\_\_\_\_\_\_ 1 sf: 50,000\_\_\_

Ans #57-60: 4 4.298 4.3 78 78.2 80 374 374.0 400 50,000 50,000 50,000

**Significant Figures II**

**1) Review: Indicate how many sig figs are in each of the following measurements**:

a) 34.0 cm\_\_\_ b) 61400 g\_\_\_ c) 0.002030 sec \_\_\_ d) 6.35 x 104 L\_\_\_ e) 4.0 x 10-5 kg \_\_\_

**2) Perform all calculations and express your answer with the appropriate sig figs & units:**

a) 67 cm x 55 cm = 3700 cm2 b) 4.29 m x 9.83 m = \_\_\_\_\_ c) 870 mm x 430 mm = \_\_\_\_\_

d) 0.034 g/L x 8.8 L = \_\_\_\_\_ e) 5.79 m/hr x 2.34 hr = \_\_\_\_\_ f) 1.405 m x 6.39 m = \_\_\_\_\_

g) 5.00 cm x 6.00 cm = \_\_\_\_\_ h) 5.6 m2 x 6.23 m = \_\_\_\_\_\_ i) 5.471 g/mL x 24.0 mL = \_\_\_

j) 45.9 mi ÷ 1.50 hr = \_\_\_\_\_\_\_ k) 320 m ÷ 160 sec = \_\_\_\_\_\_\_ l) 234.6 g ÷ 67.4 mL = \_\_\_\_\_\_

m) 36.2 cm ÷ 4 min = \_\_\_\_\_\_\_ n) 3.45 L ÷ 19 sec = \_\_\_\_\_\_\_ o) 8.90 lb ÷ 1730 days = \_\_\_\_

p) 3.56 cm x 2.45 cm x 0.83 cm = \_\_\_\_\_\_ q) 3.56 g ÷ (2.6 cm x 4.3 cm x 7.8 cm) = \_\_\_\_\_

**3) Perform all calculations & give your answers with the appropriate place value & units:**

a) 67 cm + 45 cm = \_\_\_\_\_\_ b) 4.29 m + 9.83 m = \_\_\_\_\_\_ c) 170 mm + 250 mm = \_\_\_\_\_

d) 6.74 g + 2.1 g = \_\_\_\_\_\_ e) 1200 kg + 286 kg = \_\_\_\_\_\_ f) 13.531 sec + 4.1 sec = \_\_\_\_

g) 7800 cm - 2 cm = \_\_\_\_\_\_ h) 784.326 m - 2 m = 782 m i) 2.54 g - 0.000034 g = \_\_\_\_\_

j) 720 kg - 34.2 kg = \_\_\_\_\_\_ k) 45230 mL - 230 mL = \_\_\_\_\_ l) 3.567 m - 0.067 m = \_\_\_\_\_\_

**4)** A box is 235.8 cm by 45.2 cm by 7.9 cm. Its volume (V = l x w x h) is: \_\_\_\_\_\_\_\_\_\_

**5)** A 934 g cat ate a 82.4 g rat, and then coughed up a 3.672 g hair ball. The cat now weighs: \_\_\_\_\_

**6)** A 5627 g brick measures 5.60 cm x 4.51 cm x 24.71 cm. Its density (D=m/V) is: \_\_\_\_\_\_

**7)** A car travels a distance of 450 km in a time of 3.42 hrs. Its average velocity (v = d/t) is: \_\_\_\_\_\_\_\_

**8)** A 45.67 g stone is place in a grad. cylinder, and the liquid level rises from 25.7 mL to 32.6 mL.

Determine the stone's density: \_\_\_\_\_\_\_\_ (hint: Density = mass ÷ volume displacement)

**9)** A 65 kg man is losing weight at the rate of 0.3612 kg/week. After 7.24 weeks, he will weigh:

\_\_\_\_

**ANS (+1):** 0.00514 0.041 0.18 0.30 2 2.0 2.54 3 3 3 3.48 3.500 4 6.62 7.2 8.8 8.98 9 9.02 13.5 14.12 17.6 30.0 30.6 35 42.2 62 112 130 131 420 685.8 1013 1486 7798 45000 84000 100120 370000

**UNITS (+1):** g g g g g kg kg kg m m m cm cm mm m2 m2 cm2 mm2 m3 cm3 cm3 g/cm3 g/cm3 g/mL g/mL L/sec cm/min km/hr sec hr mL m/sec mi/hr lb/day