**SPH4U0 Data Analysis Quiz** NAME : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mark: \_\_\_\_\_/23 marks

1. Give the number of significant digits in each of the following measurements. [3]

a) 0.035 s \_\_\_\_\_\_\_\_ b) 2.5700 kg \_\_\_\_\_\_\_\_\_ c) 12,000 m \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Do the following calculations, rounding off the answers to the appropriate number of significant digits.

Include the correct units in your answer. [3]

a) 25 g + 3.940 g = b) 42.55 m 3.59 s = c) 8.0 kg (4.90 m x 1.6795 m x 1.250 m) =

3. Give the **units** that would result from each of the following calculations. [2]

a) 2.5 5.0 s = b) 12 kg ÷ 1.5 =

4. Make the following unit conversions, keeping the same number of significant digits the same.

Show your work. [4]

a) 0.0000435 kg = ? mg b) 34000 m2= ? km2

5. Use the formula given in each case below to calculate the result and its absolute uncertainty.

Round off answers to the appropriate number of signicant digits

[4]

a) T total = T1 + T2 + T3 T1 =12.6 0.1 s , T2 =8.4 0.1 s , T3 = 7.6 0.1s

b) V = L W x H . L = 8.3 cm 2 % , W = 4.6 cm 3 % , H = 2.5 cm 3 %

6. The time for an object to drop from an elevated platform was measured for several different platform heights to investigate the relationship between time to drop and release height.

Table 1: The effect of Release Height ( H) on Time to Drop( Δt)

|  |  |
| --- | --- |
| H (m) | Δt (s) |
| 0.0 | 0.00 |
| 1.0 | 0.45 |
| 2.0 | 0.64 |
| 3.0 | 0.78 |
| 4.0 | 0.90 |
| 5.0 | 1.01 |
| 6.0 | 1.11 |
| 7.0 | 1.20 |
| 8.0 | 1.28 |
| 9.0 | 1.36 |
| 1.0 | 1.43 |

a) Plot a graph of Time to Drop (Δt) on the y-axis versus release Height (H) on the x-axis. Start your plot at the (0,0) data point. [3]

b) Identify the general relationship between and Δt and H illustrated by your graph. [1]

c) Explain how you would use graphical analysis techniques to determine the exact relationship between Δt and H. [3]