



S10: Physics – Units and Sig Digs Practice

Name: Key!Date: Nov 5th 2013

Metric Prefixes

1. Complete the following conversions.

a) 48 mm = 0.048 m

f) 3920 m = 3.92 km

b) 10 cm = 0.10 ~~0.15~~ m

g) 0.0239 m = 23.9 mm

c) 1.2 GL = 1.2×10^9 L

h) 0.0012 m = 0.12 cm

d) 25 nm = 25×10^{-9} m

i) ^{9382m} 0.009382 km = 938.2 cm

e) 25000 mg = 25 g

j) 38209 mm = 0.038209 km

Derived Units

2. How are m/s converted to km/h and km/h converted into m/s?

$$\text{m/s} \xrightarrow{\times 3.6} \text{km/h} \quad \text{km/h} \xrightarrow{\div 3.6} \text{m/s} \quad \begin{array}{l} 100 \text{ km/h} \\ \downarrow \\ 28 \text{ m/s} \end{array}$$

3. Convert the following:

a) 24 km = 24000 m

f) 8940 s = 2.48 h

b) 3.5 h = 210 min

g) 34 m/s = 122.4 km/h

c) 126 min = 2.1 h

h) 124 km/h = 34.4 m/s

d) 4138 m = 4.138 km

i) 16 m/s = 57.6 km/h

e) 2.25 h = 8100 s

k) 11.5 km/h = 3.19 m/s

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Scientific Notation

4. Rewrite the following numbers using scientific notation to **three** significant figures.

$$5684002 \quad \underline{5.68 \times 10^6}$$

$$450000 \quad \underline{4.50 \times 10^5}$$

$$5800 \quad \underline{5.80 \times 10^3}$$

$$0.00581 \quad \underline{5.81 \times 10^{-3}}$$

$$86000000000 \quad \underline{8.60 \times 10^{10}}$$

$$0.00360 \quad \underline{3.60 \times 10^{-3}}$$

$$0.00420 \quad \underline{4.20 \times 10^{-3}}$$

$$0.000000000455 \quad \underline{4.55 \times 10^{-10}}$$

$$93000000 \quad \underline{9.30 \times 10^7}$$

$$0.003470078 \quad \underline{3.47 \times 10^{-3}}$$

Significant Digits

5. Multiply or divide. Be sure to record your answer with the correct number of significant digits.

$$\overset{3}{46.0} / \overset{4}{20.00} = \underline{2.30}$$

$$0.400 \times 0.50 = \underline{0.20}$$

$$40 \times 52.00 = \overset{2000}{2080} \quad \underline{2.1 \times 10^3}$$

$$8000 / 2.02 = \overset{3960}{3960} \quad \underline{3.96 \times 10^3}$$

$$0.00860 / 28.50 = \underline{3.02 \times 10^{-4}}$$

$$400 / 60.00 = \underline{6.67}$$

$$0.500 / 8 = \overset{0.0625}{0.0625} \quad \underline{0.06}$$

$$0.0950 \times 22.99 = \underline{2.18}$$

$$0.049 \times 58.00 = \underline{2.8}$$

$$0.500 \times 0.65 \times 98.00 = \underline{32}$$

5. Add or subtract. Be sure to record your answer with the correct number of significant

figures. $46.030 - 2.9 = \underline{43.13 = 43.1}$

$$56 + 1.202 = \overset{57.202}{57.202} \quad \underline{57.}$$

$$13.2100 - 0.00123 = \overset{13.20877}{13.20877} = \underline{13.209}$$

$$14.96 + 0.25 = \underline{15.21}$$

$$71.0019 - 1.863 = \underline{69.14}$$

$$0.0003 + 1.000 = \underline{1.0}$$