Determining SIG FIGS

101

0.1

0.05

0.050

1,457.0

1,457,000

1,000,000

1,000,000.0

14

14.0

14.00

14,000

14,101

14,101,000

Determining SIG FIGS

1,010

1,011

1,011.0

1,011,000

1,011,000.00

1,011,000.000

$\left(\frac{12\ ft}{84\ inches}\right)$

5 apples

6 entries

$\left(\frac{6.02 \times 10^{23}\ atoms\ Ag}{1\ mol\ Ag}\right)$

124.0

1240

1240.00

Operations with SIGFIGS

$(41.29)(5.05) =$

$12 \times 12.0 =$

$0.001 \times 15.9 \times 41.6987 =$

$12.0 + 12 =$

$12.0 + 12.0 =$

$$\frac{6.98 \times 14.91}{1.003} =$$

$$\frac{(9.05 - 1.008) + (6.534 - 1.009)}{(4.975 + 6.988)(1.4978 - 0.5149)}$$

Determine the mean of these scores

95.5, 80.5, 91.0, 93, 97.5

Metric Prefixes

M	- mega	- 10^6	- 1,000,000
k	- kilo	- 10^3	- 1,000
d	- deci	- 10^{-1}	- 0.1
c	- centi	- 10^{-2}	- 0.01
m	- milli	- 10^{-3}	- 0.001
μ	- micro	- 10^{-6}	- 0.000001
n	- nano	- 10^{-9}	- 0.000000001
p	- pico	- 10^{-12}	- 0.000000000001

How many grams in a kg?

How many nanometers in a meter?

How many grams in a Mg?

How many grams in a mg?

Metric Conversions -Use D.A.

14.9 mL = ? cL

15,900 J = ? kJ

0.05 mm = ? m

15.5 mm = ? cm

1400 cm = ? km

1400 km = ? cm

9,050 mL = ? L

9,050 mL = ? dL

9,050 dL = ? cL

375 mg = ? g

375 mg = ? cg

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{V}$$

(1) 15.0 g takes up of volume of 45 cm³. Density = ?

$$D = \frac{m}{V} = \frac{15.0\text{ g}}{45\text{ cm}^3} = \boxed{0.33\text{ g/cm}^3}$$

↓

What is the volume if Density is 0.33 g/cm³ and mass is 15.0 g?

$$D = \frac{m}{V} \quad \text{so} \quad DV = m \quad \text{so} \quad V = \frac{m}{D}$$

$$V = \frac{15.0\text{ g}}{0.33\text{ g/cm}^3} = \boxed{45\text{ cm}^3}$$

Accuracy & Precision

Which group is most precise

a) 6g, 7g, 8g

b) 6.0g, 7.0g, 8.0g

c) 6.0g, 6.5g, 7.0g

d) 6.0g, 7.0g, 8.0g

Use Dimensional Analysis to solve the following:

500. cm = ? miles

[1 inch = 2.54 cm]

93.5 ft = ? km

[5280 ft = 1 mile; 39 inches = 1 meter; 1 yd = 3 ft; 12 inches = 1 ft; 1000 m = 1 km]

Temp Conversions

$$K = C + 273$$

so

$$C = K - 273$$

	Freeze	Boiling
K	273	⇒ 373
C	0	⇒ 100

109° C = ? K

27° C = ? K

273 K = ? °C

115 K = ? °C

45 K = ? °C