Metric Conversions Practice Worksheet Key

(Use proper sig figs when recording your answers. Show the steps of your dimensional analysis.)

1.) 5.0m + 6.25m + 3.1m = 14.4 m

2.) 4.2cm x 3 cm x 2.398 cm = 30 cm

3.) Circle the larger unit in each pair below:

1 m or (1 km)
1 µg or (1 cg)
(1 L) or 1 dL
1 mm or (1 km)
(1 dag) or 1 ng
(1 Mm) or 1 hm

4.) 71 mm = _____ m

$71\text{ mm} \times \frac{1\text{m}}{1000\text{mm}} = \boxed{0.071\text{m}}$

5.) 24 cm = _____ Gm

$24\text{cm} \times \frac{1\text{m}}{100\text{cm}} \times \frac{1\text{Gm}}{1\times10^{9}\text{m}} = \boxed{2.4\times10^{-10}\text{Gm}}$

6.) 15 km = _____ mi (1 mi= 63, 360 inches and 1 inch = 2.54 cm)

$15\text{km} \times \frac{1000\text{m}}{1\text{km}} \times \frac{100\text{cm}}{1\text{m}} \times \frac{1\text{in}}{2.54\text{cm}} \times \frac{1\text{mi}}{63,360\text{in}} = \boxed{9.3\text{m}}$

7.) 42 ng = _____ g

$42\text{ng} \times \frac{1\text{g}}{1\times10^{9}\text{ng}} = \boxed{4.2\times10^{-8}\text{g}}$

8.) 1.2 g + 3 dg + 2.6 g + 90cg = _____ g

$3\text{dg} \times \frac{1\text{g}}{10\text{dg}} = .3\text{g}$ $90\text{cg} \times \frac{1\text{g}}{100\text{cg}} = .9\text{g}$

$1.2\text{g} + 0.3\text{g} + 2.6\text{g} + 0.9\text{g} = \boxed{5\text{g}}$

9.) The distance from Oak Street to Main Street is 0.75 kilometers. How many decimeters is this?

$0.75\text{km} \times \frac{1000\text{m}}{1\text{km}} \times \frac{10\text{dm}}{1\text{m}} = \boxed{7500\text{dm}}$

10.) The outdoor running track at a high school is 4.0×10^{2} m long. How many laps make exactly 1 kilometer?

$1\text{km} \times \frac{1000\text{m}}{1\text{km}} \times \frac{1\text{lap}}{400\text{m}} = \boxed{2.5\text{ laps}}$

11.) 30. km/min = _____ mi/s (1 mi = 63, 360 inches and 1 inch= 2.54 cm)

$\frac{30\text{km}}{1\text{min}} \times \frac{1000\text{m}}{1\text{km}} \times \frac{100\text{cm}}{1\text{m}} \times \frac{1\text{in}}{2.54\text{cm}} \times \frac{1\text{mi}}{63,360\text{in}} \times \frac{1\text{min}}{60\text{s}} = \boxed{\frac{0.31\text{mi}}{\text{s}}}$

12.) 20.m/s = _____ miles/hour

$\frac{20.\text{m}}{1\text{s}} \times \frac{100\text{cm}}{1\text{m}} \times \frac{1\text{in}}{2.54\text{cm}} \times \frac{1\text{mi}}{63,360\text{in}} \times \frac{60\text{s}}{1\text{min}} \times \frac{60\text{min}}{1\text{hr}} = \boxed{\frac{45\text{mi}}{\text{hr}}}$

13.) 100 g/ml = _____ mg/L

$$\frac{100.\text{g}}{\text{mL}} \times \frac{1000\text{mg}}{1\text{g}} \times \frac{1000\text{mL}}{1\text{L}} = 1.00 \times 10^{8}\ \text{mg/L}$$

14.) 1 mm^2 = _____ μm^2

$$1\,\text{mm}^2 \times \frac{1^2\,\text{mm}^2}{100^2\,\text{mm}^2} \times \frac{(1\times10^{6})^2\,\mu\text{m}^2}{1\,\text{m}^2} = 1\times10^{8}\,\mu\text{m}^2$$

15.) 1 m^3 = _____ dm^3

$$1\,\text{m}^3 \times \frac{10^3\,\text{dm}^3}{1^3\,\text{m}^3} = 1000\,\text{dm}^3$$

16.) 5280 mm^2 = _____ m^2

$$5280\,\text{mm}^2 \times \frac{1^2\,\text{m}^2}{1000^2\,\text{mm}^2} = 0.00528\,\text{m}^2$$

17.) 9,055,033 μm^2 = _____ mm^2

$$9055033\,\mu\text{m}^2 \times \frac{1^2\,\text{m}^2}{(1\times10^{6})^2\,\mu\text{m}^2} \times \frac{(1000)^2\,\text{mm}^2}{1^2\,\text{m}^2} = 9.055033\,\text{mm}^2$$