CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

1) 0.00157 km to mm

$1\ km = 10^{3}\ m \qquad 1\ mm = 10^{-3}\ m$

$$0.00157\ km \times \frac{10^{3}\ m}{1\ km} \times \frac{1\ mm}{10^{-3}\ m} = \boxed{1570\ mm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

19) 0.00874 μg to mg

$1\,\mu g = 10^{-6}\,g \qquad 1\,mg = 10^{-3}\,g$

$$0.00874\,\mu g \times \frac{10^{-6}\,g}{1\,\mu g} \times \frac{1\,mg}{10^{-3}\,g} = 8.74 \times 10^{-6}\,mg$$

$$(0.00000874\,mg)$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

2) 55000 g to kg

$$1\ kg = 10^3\ g$$

$$55000\ g \times \frac{1\ kg}{10^3\ g} = \boxed{55\ kg}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

20) 9.89 cs to ms

$cs = 10^{-2}$ s $ms = 10^{-3}$ s

$$9.89\ cs \times \frac{10^{-2}\ s}{cs} \times \frac{ms}{10^{-3}\ s} = \boxed{98.9\ ms}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

3) 42.5 L to mL

$1\ mL = 10^{-3}\ L$

$$42.5\ L \times \frac{mL}{10^{-3}\ L} = \boxed{42500\ mL}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

21) 12.4 mm^2 to cm^2

$mm = 10^{-3}\ m$ $\quad cm = 10^{-2}\ m$

$$12.4\ mm^2 \times \frac{10^{-3}\ m}{mm} \times \frac{10^{-3}\ m}{mm} \times \frac{cm}{10^{-2}\ m} \times \frac{cm}{10^{-2}\ m} = 0.124\ cm^2$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

4) 137 in to m (Note: 1 in = 2.54 cm)

$2.54\ cm = 1\ in \qquad 1\ cm = 10^{-2}\ m$

$$137\ in \times \frac{2.54\ cm}{1\ in} \times \frac{10^{-2}\ m}{1\ cm} = \boxed{3.48\ m}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

22) 13.6 m^3 to mm^3

$$1\,mm = 10^{-3}\,m$$

$$13.6\,m^3 \times \frac{1\,mm}{10^{-3}\,m} \times \frac{1\,mm}{10^{-3}\,m} \times \frac{1\,mm}{10^{-3}\,m} = \boxed{1.36 \times 10^{10}\,mm^3}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

5) 0.847 Mg to kg

$1\ Mg = 10^6\ g \qquad 1\ kg = 10^3\ g$

$$0.847\ Mg \times \frac{10^6\ g}{1\ Mg} \times \frac{1\ kg}{10^3\ g} = \boxed{847\ kg}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

23) 24.5 in to m , You may assume that 2.54 cm = in

$2.54\ cm = in \qquad cm = 10^{-2} m$

$$24.5\ in \times \frac{2.54\ cm}{in} \times \frac{10^{-2} m}{cm} = \boxed{0.622 m}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

6) 5650 feet to furlongs.
(Assume that **1 furlong = 220 yd**, and that **3 ft = 1 yd**. These relationships are exact!)

$1\ furl = 220\ yd \qquad 3\ ft = 1\ yd$

$$5650\ ft \times \frac{1\ yd}{3\ ft} \times \frac{1\ furl}{220\ yd} = \boxed{8.56\ furl}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

24) 1.35 miles to inches, assuming 1760 yd = mi, 3 ft = yd, 12 in = ft

$$1.35\ \text{mi} \times \frac{1760\ \text{yd}}{\text{mi}} \times \frac{3\ \text{ft}}{\text{yd}} \times \frac{12\ \text{in}}{\text{ft}} = \boxed{85500\ \text{in}}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

7) 0.328 cm to mm

$1\ cm = 10^{-2}\ m \qquad 1\ mm = 10^{-3}\ m$

$$0.328\ cm \times \frac{10^{-2}\ m}{1\ cm} \times \frac{1\ mm}{10^{-3}\ m} = \boxed{3.28\ mm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

25) 21.47 inches to yards, assuming 12 in = ft, 3 ft = yd

12 in = ft 3 ft = yd

$$21.47\ \text{in} \times \frac{\text{ft}}{12\ \text{in}} \times \frac{\text{yd}}{3\ \text{ft}} = \boxed{0.5964\ \text{yd}}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

8) 1.3 μ L to nL

$\mu L = 10^{-6} L \quad nL = 10^{-9} L$

$$1.3\ \mu L \times \frac{10^{-6} L}{\mu L} \times \frac{nL}{10^{-9} L} = \boxed{1300\ nL}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

26) 132 nm to mm

$1\ nm = 10^{-9}\ m \qquad 1\ mm = 10^{-3}\ m$

$$132\ nm \times \frac{10^{-9}\ m}{1\ nm} \times \frac{1\ mm}{10^{-3}\ m} = \boxed{1.32 \times 10^{-4}\ mm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

9) 0.55 mg to g

$1\ mg = 10^{-3}\ g$

$$0.55\ mg \times \frac{10^{-3}\ g}{1\ mg} = \boxed{5.5 \times 10^{-4}\ g \quad (0.00055\ g)}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

27) 1.35×10^{6} μ g to cg

$\mu g = 10^{-6}\ g \qquad cg = 10^{-2}\ g$

$$1.35\times10^{6}\ \mu g \times \frac{10^{-6}\ g}{\mu g} \times \frac{cg}{10^{-2}\ g} = \boxed{135\ cg}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

10) Calculate how many gallons of gas would be required to drive 155 miles in a car whose fuel usage is 32 miles per gallon.

$32\ mi = 1\ gal$

$$155\ mi \times \frac{1\ gal}{32\ mi} = \boxed{4.8\ gal}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

28) 1.3 μg to g

$1\ \mu g = 10^{-6}\ g$

$$1.3\ \mu g \times \frac{10^{-6}\ g}{1\ \mu g} = \boxed{1.3 \times 10^{-6}\ g}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

11) 12.4 mg to g

$1\ mg = 10^{-3}\ g$

$$12.4\ mg \times \frac{10^{-3}\ g}{1\ mg} = \boxed{0.0124\ g}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

29) 0.0017 Mg to kg

$1\ Mg = 10^6\ g \qquad 1\ kg = 10^3\ g$

$$0.0017\ Mg \times \frac{10^6\ g}{1\ Mg} \times \frac{1\ kg}{10^3\ g} = \boxed{1.7\ kg}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

12) 1300000 µg to mg

$1\ mg = 10^{-3}\ g \qquad 1\ \mu g = 10^{-6}\ g$

$$1300000\ \mu g \times \frac{10^{-6}\ g}{1\ \mu g} \times \frac{1\ mg}{10^{-3}\ g} = \boxed{1300\ mg}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

30) 0.0000129 cm to Mm

$1\ cm = 10^{-2}\ m \qquad 1\ Mm = 10^{6}\ m$

$$0.0000129\ cm \times \frac{10^{-2}\ m}{1\ cm} \times \frac{1\ Mm}{10^{6}\ m} = \boxed{1.29 \times 10^{-13}\ Mm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

13) 87.0 mL to L

$1\ mL = 10^{-3}\ L$

$$87.0\ mL \times \frac{10^{-3}\ L}{1\ mL} = \boxed{0.0870\ L}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

31) 0.472 yards to inches, assuming 12 in = ft, 3 ft = yd

12 in = ft 3 ft = yd

$$0.472\ \text{yd} \times \frac{3\ \text{ft}}{\text{yd}} \times \frac{12\ \text{in}}{\text{ft}} = \boxed{17.0\ \text{in}}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

14) 64700 cm to Mm

$cm = 10^{-2}_{m}$ $\quad Mm = 10^{6}_{m}$

$$64700\ cm \times \frac{10^{-2}_{m}}{cm} \times \frac{Mm}{10^{6}_{m}} = \boxed{6.47 \times 10^{-4}\ Mm \quad (0.000647\ Mm)}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

32) 34.3 in^3 to ft^3, assuming 12 in = ft

12 in = ft

$$34.3\ in^3 \times \frac{ft}{12\ in} \times \frac{ft}{12\ in} \times \frac{ft}{12\ in} = \boxed{0.0198\ ft^3}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

15) 0.00087 km to cm

$km = 10^{3}\,m$ $\quad cm = 10^{-2}\,m$

$$0.00087\ km \times \frac{10^{3}\,m}{km} \times \frac{cm}{10^{-2}\,m} = \boxed{87\ cm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

33) 27.3 μL to mL

$\mu L = 10^{-6} L \qquad mL = 10^{-3} L$

$$27.3\ \mu L \times \frac{10^{-6} L}{\mu L} \times \frac{mL}{10^{-3} L} = \boxed{0.0273\ mL}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

16) 0.00000009 kg to g

$1\ Kg = 10^3\ g$

$$0.00000009\ kg \times \frac{10^3\ g}{1\ Kg} = \boxed{9 \times 10^{-5}\ g \quad (0.00009\ g)}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

34) 12 m to mm

$1\ mm = 10^{-3}\ m$

$$12\ m \times \frac{mm}{10^{-3}\ m} = \boxed{12000\ mm}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

17) 0.0000874 m to cm

$1\ cm = 10^{-2}\ m$

$$0.0000874\ m \times \frac{1\ cm}{10^{-2}\ m} = \boxed{0.00874\ cm \quad (8.74 \times 10^{-3}\ cm)}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

35) 0.013 ks to ms

$1\ ks = 10^{3}\ s \qquad 1\ ms = 10^{-3}\ s$

$$0.013\ ks \times \frac{10^{3}\ s}{1\ ks} \times \frac{1\ ms}{10^{-3}\ s} = \boxed{13\,000\ ms}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

18) 0.7350 L to mL

$1\ mL = 10^{-3}\ L$

$$0.7350\ L \times \frac{mL}{10^{-3}\ L} = \boxed{735.0\ mL}$$

CHM 110 – Practice Problems

Solve the problem. Show your dimensional analysis setup in the space given below. Draw a box around your final answer. See the other side of the page for your second problem.

36) 11 s to μs

$\mu s = 10^{-6} s$

$$11\ s \times \frac{\mu s}{10^{-6}\ s} = \boxed{11000000\ \mu s \quad (1.1 \times 10^{7}\ \mu s)}$$