

Physical Science week 3

$33.4 \text{ mm} \rightarrow \frac{\text{small number}}{\text{big number}} \frac{\text{m}}{\text{unit}}$

$33.4 \text{ mm} = 0.0334 \text{ m}$

$1500 \text{ cm} \rightarrow \frac{\text{small}}{\text{big}} \frac{\text{km}}{\text{unit}}$

$1500 \text{ cm} = 0.01500 \text{ km} = 0.15 \text{ km}$

$0.23 \text{ kg} \rightarrow \frac{\text{big}}{\text{small}} \frac{\text{cg}}{\text{unit}}$

$0.23 \text{ kg} = 23000 \text{ cg}$

$90 \text{ mm} \rightarrow 9 \text{ cm}$

Dimensional Analysis

$50 \text{ m/s} \rightarrow \frac{50 \text{ m}}{1 \text{ s}} \times \frac{1 \text{ km}}{1000 \text{ m}} \times \frac{60 \text{ s}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ h}} = \frac{180,000 \text{ km}}{1,000 \text{ h}} = 180 \text{ km/hr}$

$\frac{12 \text{ donuts}}{1 \text{ dozen}}$

$50 \text{ m} = \text{km}$

$0.050 \text{ km/s} \times \frac{60 \text{ s}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ h}}$

$$\frac{123 \text{ cm}}{1 \text{ s}} \rightarrow \frac{\boxed{\text{km}}}{\text{h}}$$

$$\frac{\boxed{123 \text{ cm}}}{\cancel{1 \text{ s}}} * \frac{\cancel{1 \text{ m}}}{\boxed{100 \text{ cm}}} * \frac{\cancel{1 \text{ km}}}{\boxed{1000 \text{ m}}} * \frac{\boxed{60 \text{ s}}}{\cancel{1 \text{ min}}} * \frac{\boxed{60 \text{ min}}}{\cancel{1 \text{ h}}} = \boxed{4.428 \text{ km/h}}$$

$$\frac{123 \text{ cm}}{1 \text{ s}} * \frac{1 \text{ km}}{\boxed{100000 \text{ cm}}} * \frac{60 \text{ s}}{1 \text{ min}} * \frac{60 \text{ min}}{1 \text{ h}} = \boxed{4.428 \text{ km/h}}$$

$$120 \frac{\text{km}}{\text{h}} \rightarrow \frac{\boxed{\text{cm}}}{\text{s}}$$

$$\frac{120 \cancel{\text{km}}}{\boxed{\cancel{1 \text{ h}}}} * \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} * \frac{100 \boxed{\text{cm}}}{1 \cancel{\text{m}}} * \frac{1 \cancel{\text{h}}}{60 \cancel{\text{min}}} * \frac{1 \cancel{\text{min}}}{60 \boxed{\text{s}}} = \boxed{3333 \frac{\text{cm}}{\text{s}}}$$

— m = — cm

$$300 \text{ cm}^3 \rightarrow \text{— m}^3$$

$$300 \text{ cm} \rightarrow \text{m}$$

$$300 \cancel{\text{cm}} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}} = \boxed{3 \text{ m}}$$

$$300 \text{ cm}^2 \rightarrow \text{m}^2$$

$$300 \text{ cm}^{(2)} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}}$$

$$\left\{ 300 \text{ cm}^{(3)} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}} * \frac{1 \text{ m}}{100 \cancel{\text{cm}}} \right\}$$

$$0.000300$$

$$\boxed{0.000300 \text{ m}^3}$$

23 mm^3 \rightarrow 0.000000023 m^3
big small \rightarrow small big

$1000 \text{ mm} = 1 \text{ m}$
 $\text{mm}^1 \rightarrow \text{move } 3$
 $\text{mm}^3 \rightarrow 3(3) = 9$

0.000000023
 0.000000023 m^3

0.48 km^3 \rightarrow $480000000000000 \text{ cm}^3$
big \rightarrow big small

$1 \text{ km} = 100000 \text{ cm}$
big \rightarrow big small
 $\text{km}^1 \rightarrow$ cm^1
 $\text{move } 5 \text{ times}$
 $\text{km}^3 \rightarrow \text{cm}^3$
 $3(5) = 15$

0.48
 $480000000000000 \text{ cm}^3$
 $15 - 2 = 13$

342 km^3 \rightarrow $342000000000000000000 \text{ mm}^3$
small big \rightarrow big small
 342
 3.42
 8 mm \rightarrow $8000000000000000000 \text{ km}$
small \rightarrow small big

$\text{km} \rightarrow \text{mm}$
 $\text{move } 6$
 $3(6) = 18$
 3.42×10^{20}
 $\text{mm} \rightarrow \text{km}$
 $3(6) = 18$
 8×10^{-18}

18 cm^2 \rightarrow 0.0018 m^2
small \rightarrow small big

$\text{cm} \rightarrow \text{m}$
 $2(2) = 4$

24 mm^2 \rightarrow 0.24 cm^2
small \rightarrow small big

$\text{mm} \rightarrow \text{cm}$
 $2(1) = 2$

Quiz 2
due Sep 30th HW
Online homework
W3
(Friday)

Quiz 1
due tonight

Quiz 3
due Oct 7th
(Friday)