August 23, 2024

SIGNIFICANT DIGITS – used with measurements

2.378 m * 5.42 m = 12.88876 m^2

1) All nonzero digits are significant.

2) Zeros between 2 sig. digits are significant

3) Zeros at the end of a decimal fraction are significant.

4) Mult./Div = Round to the smallest # of sig. digits in the original measurements

360,000 m 2

0.000793 cm 3

50.040 in. 4

0.00730 cm 3

860.03 ft 5

7000.0 m 5

$7.2\ ft * 3.65\ ft = 26.28\ ft^2 \rightarrow 26\ ft^2$

(2 sig. figs; 3 sig. figs; Round to 2)

$$\frac{0.0304\ m * 180.62\ m}{2} = 2.745424\ m^2$$

(3 sig. figs; 5 sig. figs)

$= 2.75\ m^2$

5/ Add & Subtr. = Use the smallest # of decimal places in the original measurements.

$$\begin{array}{r} {}^{1}7.20\ \text{ft} \\ +\ 3.6\tfrac{5}{2}\ \text{ft} \\ \hline 10.85\ \text{ft} \end{array}$$

≈ 10.9 ft.

Unit Conversion – Convert to $\frac{mi}{hr}$

$$240\ \frac{ft}{sec} \cdot \frac{3600\ sec}{1\ hr} \cdot \frac{1\ mi}{5280\ ft} = \frac{240 \cdot 3600}{5280}\ \frac{mi}{hr}$$

$$= 163.636363$$

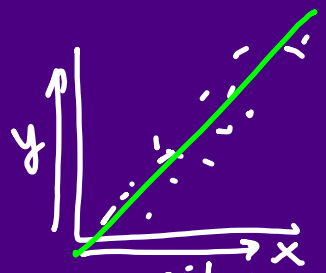
$$\approx 160\ \frac{mi}{hr}$$

Convert 45 m/min to cm/sec.

$$45\ \frac{m}{min} \cdot \frac{100\ cm}{m} \cdot \frac{1\ min}{60\ sec} = \frac{45 \cdot 100}{60}$$

$$= \boxed{75\ \frac{cm}{sec}}$$

Scatter Plots



positive

x ↑
y ↑

negative

x ↑
y ↓

no correlation