

Aug 26 Block 8

Measurements and units

units are arbitrary and convenient

unit standards help us to communicate
our measurements with others

	MKS	cgs	US
length	meter	centimeter	foot
mass	kilogram	gram	slug
time	sec	sec	sec

SI (metric)

10^n	12	9	6	3	2	1	0	-1	-2	-3	-6	-9	-12
	T	G	M	K	H	Da	m	d	c	m	μ	n	p
	era	iga	iga	ilo	ecto	eka	measurement	ic	enti	illi	oro	osa	ico

CONVERSIONS

a measurement is a number \times unit ab

pretend you have 17 n.

how many cents do you have?

$$17 \times 5 = 85 \text{¢}$$

$$\frac{n}{5\text{¢}} = \frac{5\text{¢}}{n}$$

$$17n \cdot 1 = 17n$$

$$\frac{17n}{1} \cdot \left(\frac{n}{5\text{¢}}\right) = \frac{17n \cdot n}{5\text{¢}}$$

$$= \frac{17n^2}{5\text{¢}}$$

$$\frac{17n}{1} \cdot \left(\frac{5\text{¢}}{n}\right) = \frac{17 \cdot 5\text{¢}}{1} = 85 \text{¢}$$

$$a \left(\frac{b}{c}\right) = \frac{ab}{c}$$

$$\cancel{a} \cdot \cancel{b}/\cancel{c}$$

how many seconds are in 1 hour?

$$\frac{60 \text{ sec}}{\text{min}} = \frac{\text{min}}{60 \text{ sec}}$$

$$\frac{60 \text{ min}}{\text{hr}} = \frac{\text{hr}}{60 \text{ min}}$$

$$\frac{1 \text{ hr}}{1} \cdot \frac{60 \text{ min}}{\text{hr}} \cdot \frac{60 \text{ sec}}{\text{min}} = \frac{60 \cdot 60 \text{ hr} \cdot \text{min} \cdot \text{sec}}{\text{hr} \cdot \text{min}}$$

$$= 3600 \text{ sec}$$

if there are 5280 ft = mile

how many feet in 60 miles?