

Convert 100 km/hr to miles per hour.

m = meter

① 2.54 cm = 1 inch

k ~ 1000

1 km = 1000 m

cm = Centimeter

100 cm = 1 m

5280 ft = 1 mile

12 inches = 1 ft

a)

$$\Rightarrow \frac{100 \text{ km}}{1 \text{ hr}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{100 \text{ cm}}{1 \text{ m}} \cdot \frac{1 \text{ inch}}{2.54 \text{ cm}} \cdot \frac{1 \text{ ft}}{12 \text{ inches}} \cdot \frac{1 \text{ mile}}{5280 \text{ ft}}$$

$$= \frac{100 \text{ km} \cdot 1000 \text{ m} \cdot 100 \text{ cm} \cdot 1 \text{ inch} \cdot 1 \text{ ft} \cdot 1 \text{ mile}}{1 \text{ hr} \cdot 1 \text{ km} \cdot 1 \text{ m} \cdot 2.54 \text{ cm} \cdot 12 \text{ inches} \cdot 5280 \text{ ft}}$$

$$= \frac{100 \cdot 1000 \cdot 100 \cdot 1 \cdot 1 \cdot 1 \text{ miles}}{1 \cdot 1 \cdot 1 \cdot 2.54 \cdot 12 \cdot 5280 \text{ hrs}}$$

$$= \frac{10,000,000 \text{ miles}}{160,934.4 \text{ hrs}} \approx \boxed{62.14 \text{ miles/hr}}$$

An example<sup>of</sup> conversions using Unit Fractions.

b) Knowing/Given 1 mile  $\approx$  1.609 km

$$\Rightarrow \frac{100 \text{ km}}{1 \text{ hr}} \cdot \frac{1 \text{ mile}}{1.609 \text{ km}} = \frac{100 \text{ miles}}{1.609 \text{ hr}}$$

$$\approx \boxed{62.16 \text{ miles/hr}}$$