Convert each of the following numbers to the stated units

$1.43 \text{ rad} \rightarrow \text{degrees}$

$34^o \rightarrow \text{radians}$

$1.2\pi \rightarrow \text{degrees}$

$1^o \rightarrow \text{radians}$

$\frac{\pi}{3} \rightarrow \text{degrees}$

$3.5 \text{ miles} \rightarrow \text{km}$

5.3 gallons $\rightarrow$ Litres

1 year $\rightarrow$ minutes

2.6 inches $\rightarrow$ cm

$2\frac{1}{16}$ inches $\rightarrow$ cm

3.2 cm $\rightarrow$ km

$3\ \mathrm{m}^2 \rightarrow \mathrm{ft}^2$

$$13\ \frac{\mathrm{m}}{\mathrm{s}} \rightarrow \frac{\mathrm{km}}{\mathrm{h}}$$

$$23\ \frac{\mathrm{gallons}}{\mathrm{min}} \rightarrow \frac{\mathrm{L}}{\mathrm{s}}$$

$$56\ \frac{\mathrm{ft}}{\mathrm{s}} \rightarrow \frac{\mathrm{km}}{\mathrm{h}}$$

$$326\ \frac{\mathrm{kg}}{\mathrm{s}} \rightarrow \frac{\mathrm{lbs}}{\mathrm{min}}$$

$$0.032\ \frac{\mathrm{gallons}}{\mathrm{s}} \rightarrow \frac{\mathrm{Litres}}{\mathrm{hour}}$$

$$12\ \frac{\text{ft}}{\text{min}} \rightarrow \frac{\text{miles}}{\text{hour}}$$

$$2.3\ \frac{\text{ft}^3}{\text{s}} \rightarrow \frac{\text{m}^3}{\text{h}}$$

$$2\pi\ \frac{1}{\text{s}} \rightarrow \frac{\text{degrees}}{\text{h}}$$

$$2000\ \frac{\text{revolutions}}{\text{min}} \rightarrow \frac{\text{radians}}{\text{s}}$$

$$2.8\ \frac{\text{kg}}{\text{inch}} \rightarrow \frac{\text{lbs}}{10\,\text{cm}}$$

Convert each of the following numbers to the stated units

1.43 rad $\rightarrow$ degrees

$1.43 \text{ rad} \left(\frac{360^\circ}{2\pi \text{ rad}}\right) = 81.9^\circ$

$34^o \rightarrow$ radians

$34^\circ \left(\frac{2\pi}{360^\circ}\right) = 0.189\pi = \frac{17\pi}{90} = 0.593 \text{ rad}$

$1.2\pi \rightarrow$ degrees

$1.2\pi \left(\frac{360^\circ}{2\pi}\right) = 216^\circ$

$1^o \rightarrow$ radians

$1^\circ \left(\frac{2\pi}{360^\circ}\right) = 0.00556\pi = \frac{\pi}{180} = 0.0174 \text{ rad}$

$\frac{\pi}{3} \rightarrow$ degrees

$\frac{\pi}{3} \left(\frac{360^\circ}{2\pi}\right) = 60^\circ$

3.5 miles $\rightarrow$ km

$3.5 \text{ miles} \left(\frac{1.6 \text{ km}}{1 \text{ mile}}\right) = 5.6 \text{ km}$

5.3 gallons $\rightarrow$ Litres

$5.3 \text{ gallons} \left(\frac{3.78 \text{ Litres}}{1 \text{ gallon}}\right) = 20.0 \text{ Litres}$

1 year $\rightarrow$ minutes

$1 \text{ year} \left(\frac{365 \text{ days}}{1 \text{ year}}\right)\left(\frac{24 \text{ hours}}{1 \text{ day}}\right)\left(\frac{60 \text{ min}}{1 \text{ hour}}\right) = 525600 \text{ minutes}$

2.6 inches $\rightarrow$ cm

$2.6 \text{ inches} \left(\frac{2.54 \text{ cm}}{1 \text{ inch}}\right) = 6.6 \text{ cm}$

$2\frac{1}{16}$ inches $\rightarrow$ cm

$2.0625 \text{ inches} \left(\frac{2.54 \text{ cm}}{1 \text{ inch}}\right) = 5.239 \text{ cm}$

3.2 cm $\rightarrow$ km

$3.2 \text{ cm} \left(\frac{1 \text{ m}}{100 \text{ cm}}\right)\left(\frac{1 \text{ km}}{1000 \text{ m}}\right) = 3.2 \times 10^{-5} \text{ km}$

$3 \text{ m}^2 \rightarrow \text{ft}^2$

$3 \text{ m}^2 \left(\frac{3.3 \text{ Ft}}{1 \text{ m}}\right)\left(\frac{3.3 \text{ Ft}}{1 \text{ m}}\right) = 32.7 \text{ Ft}^2$

$13\ \frac{\text{m}}{\text{s}} \rightarrow \frac{\text{km}}{\text{h}}$

$13\ \frac{\text{m}}{\text{s}} \left(\frac{1\ \text{km}}{1000\ \text{m}}\right)\left(\frac{60\ \text{s}}{1\ \text{min}}\right)\left(\frac{60\ \text{min}}{1\ \text{h}}\right) \quad = 46.8\ \frac{\text{km}}{\text{h}}$

$23\ \frac{\text{gallons}}{\text{min}} \rightarrow \frac{\text{L}}{\text{s}}$

$23\ \frac{\text{gal.}}{\text{min}} \left(\frac{3.78\ \text{L}}{1\ \text{gal.}}\right)\left(\frac{1\ \text{min.}}{60\ \text{s}}\right) \quad = 1.45\ \frac{\text{L}}{\text{s}}$

$56\ \frac{\text{ft}}{\text{s}} \rightarrow \frac{\text{km}}{\text{h}}$

$56\ \frac{\text{ft}}{\text{s}} \left(\frac{1\ \text{m}}{3.3\ \text{ft}}\right)\left(\frac{1\ \text{km}}{1000\ \text{m}}\right)\left(\frac{60\ \text{s}}{1\ \text{min.}}\right)\left(\frac{60\ \text{min.}}{1\ \text{h}}\right) \quad = 61.1\ \frac{\text{km}}{\text{h}}$

$326\ \frac{\text{kg}}{\text{s}} \rightarrow \frac{\text{lbs}}{\text{min}}$

$326\ \frac{\text{kg}}{\text{s}} \left(\frac{60\ \text{s}}{1\ \text{min.}}\right)\left(\frac{2.2\ \text{lbs}}{1\ \text{kg}}\right) \quad = 43032\ \frac{\text{lbs}}{\text{min}}$

$0.032\ \frac{\text{gallons}}{\text{s}} \rightarrow \frac{\text{Litres}}{\text{hour}}$

$0.032\ \frac{\text{gal.}}{\text{s}} \left(\frac{3.78\ \text{L}}{1\ \text{gal.}}\right)\left(\frac{60\ \text{s}}{1\ \text{min.}}\right)\left(\frac{60\ \text{min.}}{1\ \text{h}}\right) \quad = 435.5\ \frac{\text{L}}{\text{h}}$

$12\ \dfrac{\text{ft}}{\text{min}} \rightarrow \dfrac{\text{miles}}{\text{hour}}$

$12\ \dfrac{\text{ft}}{\text{min}}\left(\dfrac{1\text{ m}}{3.3\text{ ft}}\right)\left(\dfrac{1\text{ km}}{1000\text{ m}}\right)\left(\dfrac{1\text{ mile}}{1.6\text{ km}}\right)\left(\dfrac{60\text{ min}}{1\text{ h}}\right) = 0.136\ \dfrac{\text{mile}}{\text{h}}$

$2.3\ \dfrac{\text{ft}^3}{\text{s}} \rightarrow \dfrac{\text{m}^3}{\text{h}}$

$2.3\ \dfrac{\text{ft}^3}{\text{s}}\left(\dfrac{1\text{ m}}{3.3\text{ ft}}\right)^3\left(\dfrac{60\text{ s}}{1\text{ min}}\right)\left(\dfrac{60\text{ min}}{1\text{ h}}\right) = 230.4\ \dfrac{\text{m}^3}{\text{h}}$

$2\pi\ \dfrac{1}{\text{s}} \rightarrow \dfrac{\text{degrees}}{\text{h}}$

$2\pi\ \dfrac{1}{\text{s}}\left(\dfrac{360^\circ}{2\pi}\right)\left(\dfrac{60\text{ s}}{1\text{ min}}\right)\left(\dfrac{60\text{ min}}{1\text{ h}}\right) = 1296000^\circ\ \dfrac{1}{\text{h}}$

$2000\ \dfrac{\text{revolutions}}{\text{min}} \rightarrow \dfrac{\text{radians}}{\text{s}}$

$2000\ \dfrac{\text{rev.}}{\text{min}}\left(\dfrac{2\pi}{1\text{ rev.}}\right)\left(\dfrac{1\text{ min}}{60\text{ s}}\right) = 66.7\pi\ \dfrac{1}{\text{s}} = 209.4\ \dfrac{\text{rad}}{\text{s}}$

$2.8\ \dfrac{\text{kg}}{\text{inch}} \rightarrow \dfrac{\text{lbs}}{10\text{ cm}}$

$2.8\ \dfrac{\text{kg}}{\text{inch}}\left(\dfrac{1\text{ inch}}{2.54\text{ cm}}\right)\left(\dfrac{10\text{ cm}}{10\text{ cm}}\right)\left(\dfrac{2.2\text{ lbs}}{1\text{ kg}}\right) = 24.3\ \dfrac{\text{lbs}}{10\text{ cm}}$