

### 1.3 Relating SI and Imperial Units

Imperial Units to SI Units
1 in. $\approx$ 2.54 cm
1 ft. $\approx$ 30.48 cm
1 ft. $\approx$ 0.3048 m
1 yd. $\approx$ 91.44 cm
1 yd. $\approx$ 0.9144 m
1 mi. $\approx$ 1.609 km

Example: Convert:

a) 10 in. = 25.4 cm

$$10 \cancel{\text{in.}} \times \frac{2.54 \text{ cm}}{1 \cancel{\text{in.}}}$$

b) 9 cm = 3.54 in.

$$9 \cancel{\text{cm}} \times \frac{1 \cancel{\text{in.}}}{2.54 \cancel{\text{cm}}}$$

c) 5.2 km = 3.23 mi.

$$5.2 \cancel{\text{km}} \times \frac{1 \cancel{\text{mi.}}}{1.609 \cancel{\text{km}}}$$

d) 6 mi. = 9.65 km

$$6 \cancel{\text{mi.}} \times \frac{1.609 \text{ km}}{1 \cancel{\text{mi.}}}$$

e) 850 yd. = 777.24 m

$$850 \cancel{\text{yd.}} \times \frac{0.9144 \text{ m}}{1 \cancel{\text{yd.}}}$$

f) 35 m = 38.28 yd.

$$35 \cancel{\text{m}} \times \frac{1 \cancel{\text{yd.}}}{0.9144 \cancel{\text{m}}}$$

g) 0.02 km = \_\_\_\_\_ in.

~~$$0.02 \text{ km} \times \frac{1 \text{ in.}}{2.54 \text{ cm}}$$~~

$$0.02 \text{ km} = 20 \text{ m}$$

$$= 2000 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}}$$

$$= 787.40 \text{ in.}$$

h) 20 000 in. = \_\_\_\_\_ m

$$20\,000 \text{ in.} \times \frac{2.54 \text{ cm}}{1 \text{ in.}}$$

$$= 50\,800 \text{ cm}$$

$$= 508 \text{ m}$$