

**Lesson Two – Relating SI and Imperial Units**

on formula sheet

LENGTH:	
Metric	Imperial
1 millimetre (mm)	0.0394 in
1 centimetre (cm) 10 mm	0.3937 in
1 metre (m) 100 cm	1.0936 yd
1 kilometre (km) 1000 m	0.6214 mi
Imperial	Metric
1 inch (in)	2.54 cm
1 foot (ft) 12 in	0.3048 m
1 yard (yd) 3 ft	0.9144 m
1 mile (1760 Yd)	1.6093 km
1 int nautical mile (2025.4 yd)	1.852 km

**Example – Converting Between Systems of Measurement**

1. A Canadian football field is approximately 59 m wide. What is this measurement to the nearest foot?

Set up a ratio:  $\frac{\text{what you have}}{\text{what you want}} = \frac{\text{conversion table (what you have)}}{\text{conversion table (what you want)}}$

$\frac{59m}{x \text{ ft}} = \frac{0.3048 m}{1 \text{ ft}}$ , cross multiply

$(59) \times 1 = x \times 0.3048$ , divide each side by 0.3048

$\frac{59}{0.3048} = \frac{x(0.3048)}{0.3048}$

$59 \times \frac{1 \text{ ft}}{0.3048} = 194 \text{ ft}$

194 ft = x

$(59 \div 0.3048)$

← set up ratio so units cancel/divide out

# Relating SI and Imperial Units.notebook

MAAPC20S

Measurement

Lesson 2

2. After meeting in Osoyoos, B.C., Mark drove 114 km north and Laura drove 68 mi. south. Who drove farther?

alternate method  
convert 114 km to miles and compare

Convert 68 mi  $\rightarrow$  km

$$68 \cancel{\text{mi}} \times \frac{1 \text{ km}}{0.6214 \cancel{\text{mi}}} = 109.4 \text{ km} \leftarrow \text{Laura}$$

$\therefore$  Mark drove further since  $114 \text{ km} > 109.4 \text{ km}$   
Mark drove 4.6 km farther.

3. Nora knows that she is 5 ft. 7 in. tall. What height in centimetres will she list on her driver's license application?

$$5 \text{ ft } 7 \text{ in} \rightarrow 67 \text{ in}$$

$$(5 \times 12) + 7$$

↑  
12 inches in 1 ft

$$67 \cancel{\text{in}} \times 2.54 \cancel{\text{cm/in}} = 170.18 \text{ cm} = x$$

$\therefore$  she would list 170 cm

4. A truck driver knows that his load is 15 ft. wide. Regulations along his route state that any load over 4.3 m wide must have wide-load markers and an escort with flashing lights. Does this vehicle need wide-load markers?

15 ft  $\rightarrow$  m

$$15 \cancel{\text{ft}} \times 0.3048 \cancel{\text{m/ft}} = 4.572 \text{ m}$$

$4.572 > 4.3$   
 $\therefore$  He will need markers and an escort

pg. 17  
# 1e-j  
2e-j  
3a, c, d,  
e, f, h, i,  
k, l  
6, 9, 10

Assignment: ~~1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16~~