

Curriculum Outcome

M3: Solve problems using SI and imperial units that involve linear measurement using estimation and measurement strategies

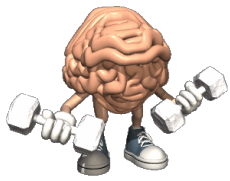
Student Friendly: The relationship between measurement units such as

$$1 \text{ m} = 1.0936 \text{ yd}$$

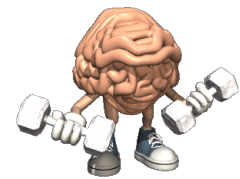
$$1 \text{ m} = 3.2808 \text{ ft}$$

$$1 \text{ mi} = 1.6093 \text{ km}$$

$$1 \text{ in} = 2.54 \text{ cm}$$



Warm Up



Quiz



4.2 - Converting Measurements

$$98 \text{ km} \times \frac{0.6214 \text{ mi}}{1 \text{ km}} = 60.9 \text{ mi}$$

Make Connections

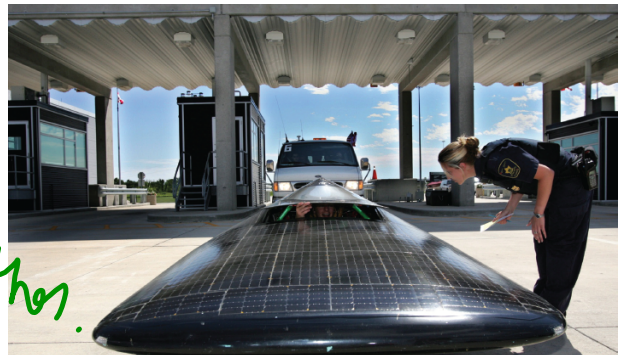
Two cars are driven in opposite directions from a Canada/United States border crossing.

In one hour, Hana drove 62 mi. south while Farrin drove 98 km north.

How could you determine which vehicle travelled farther from the border?

$$62 \text{ mi} \times \frac{1.6093 \text{ km}}{1 \text{ mi}} = 99.8 \text{ km}$$

Hana drove further.





Each measurement in the imperial system relates to a corresponding measurement in the SI system.

This table shows some approximate relationships between imperial units and SI units.

SI Units to Imperial Units	Imperial Units to SI Units
1 mm \doteq ?	1 in. \doteq ?
1 cm \doteq ?	1 ft. \doteq ? 1 ft. \doteq
1 m \doteq ?	1 yd. \doteq ?
1 m \doteq	1 yd. \doteq
1 km \doteq ?	1 mi. \doteq ?



We can use the data in the table above to convert between SI and imperial units of measure.

1.3 Relating SI and Imperial Units

MUST KNOW CONVERSIONS...

Imperial Conversion

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$1 \text{ mi} = 1760 \text{ yd}$$

Metric Conversions

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ cm} = 10 \text{ mm}$$

Between SI and Imperial

$$1 \text{ m} = 1.0936 \text{ yd}$$

$$1 \text{ m} = 3.2808 \text{ ft}$$

$$1 \text{ mi.} = 1.6093 \text{ km}$$

$$1 \text{ in.} = 2.54 \text{ cm}$$

PRACTICE: Converting IMPERIAL to METRIC

Convert each measurement. Answer to the nearest tenth.

a) 16 in. to centimetres

$$\begin{array}{r} \textcircled{16} \text{ in.} \times \textcircled{2.54} \text{ cm} \\ \hline 1 \text{ in} \\ \hline = 40.6 \text{ cm} \end{array}$$

b) 4 ft. to metres

$$\begin{array}{r} \textcircled{4} \text{ ft.} \times \textcircled{30.48} \text{ m} \\ \hline 1 \text{ ft} \\ \hline = 1.2 \text{ m} \end{array}$$

or

$$\begin{array}{r} \textcircled{4} \text{ ft.} \times \frac{1 \text{ m}}{3.2808 \text{ ft}} \\ \hline = 1.2 \text{ m} \end{array}$$

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PRACTICE: Converting IMPERIAL to METRIC

Convert each measurement. Answer to the nearest tenth.

c) 5 yd. to metres

$$\begin{array}{r} 5 \text{ yd} \times \frac{.9144 \text{ m}}{1 \text{ yd}} \\ 4.6 \text{ m} \end{array}$$



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$$1 \text{ in.} = 2.54 \text{ cm}$$

d) 1650 yd. to kilometres

$$1650 \cancel{\text{yd}} \times \frac{0.9144 \cancel{\text{m}}}{1 \cancel{\text{yd}}} \times \frac{1 \text{ km}}{1000 \cancel{\text{m}}} = 1.5 \text{ km}$$

MUST KNOW CONVERSIONS...

Imperial Conversion

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$$1 \text{ yd} = 3 \text{ ft}$$

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Metric Conversions

$$1 \text{ km} = 1000 \text{ m}$$

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Between SI and Imperial

$$1 \text{ m} = 1.0936 \text{ yd}$$

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PRACTICE: Converting IMPERIAL to METRIC

Convert each measurement. Answer to the nearest tenth.

e) 6 mi. to kilometres

$$6 \text{ mi} \times \frac{1.6093 \text{ km}}{1 \text{ mi}}$$
$$9.7 \text{ km}$$

f) 2 in. to millimetres



PRACTICE: Converting METRIC to IMPERIAL

Convert each measurement.

a) 25 mm to the nearest inch

b) 2.5 m to the nearest foot

c) 10 m to the nearest yard

d) 150 km to the nearest mile



1.3 Relating SI and Imperial Units

Example 1 Converting from Metres to Feet

A bowling lane is approximately 19 m long.

What is this measurement to the nearest foot?

**SOLUTION**

(Erase to reveal)

**CHECK YOUR UNDERSTANDING**

1.3 Relating SI and Imperial Units

HOMework...

 Worksheet - Converting Measurements.docx

Name : _____ Score : _____

Teacher : _____ Date : _____

Converting English and Metric

- 1) 22 miles = _____ kilometers
- 2) 12 yards = _____ meters
- 3) 10 miles = _____ kilometers
- 4) _____ miles = 19.5 kilometers
- 5) _____ inches = 15 centimeters
- 6) _____ yards = 9 meters
- 7) 7 inches = _____ centimeters
- 8) _____ yards = 3.5 meters
- 9) _____ inches = 16.5 centimeters
- 10) _____ miles = 8.5 kilometers
- 11) _____ yards = 4.5 meters
- 12) 4 miles = _____ kilometers
- 13) 11 yards = _____ meters
- 14) 2 yards = _____ meters
- 15) 14.5 inches = _____ centimeters
- 16) 17 inches = _____ centimeters
- 17) 11.5 miles = _____ kilometers
- 18) _____ yards = 18.5 meters
- 19) _____ inches = 12.5 centimeters
- 20) _____ miles = 21 kilometers

Attachments

Worksheet - Converting Measurements.docx

Worksheet - Converting Imperial Lengths.docx