

HOMework Solutions...

Name : _____ Score : _____

Teacher : _____ Date : _____


Converting English and Metric

- 1) 22 miles = 35.41 kilometers
- 2) 12 yards = 10.97 meters
- 3) 10 miles = 16.09 kilometers
- 4) 12.12 miles = 19.5 kilometers
- 5) 5.91 inches = 15 centimeters
- 6) 9.84 yards = 9 meters
- 7) 7 inches = 17.78 centimeters
- 8) 3.83 yards = 3.5 meters
- 9) 6.5 inches = 16.5 centimeters
- 10) 5.28 miles = 8.5 kilometers
- 11) 4.92 yards = 4.5 meters
- 12) 4 miles = 6.44 kilometers
- 13) 11 yards = 10.06 meters
- 14) 2 yards = 1.83 meters
- 15) 14.5 inches = 36.83 centimeters
- 16) 17 inches = 43.18 centimeters
- 17) 11.5 miles = 18.51 kilometers
- 18) 20.23 yards = 18.5 meters
- 19) 4.92 inches = 12.5 centimeters
- 20) 13.05 miles = 21 kilometers

Example 1 Converting from Metres to Feet

A bowling lane is approximately 19 m long.

What is this measurement to the nearest foot?

 **SOLUTION** A length of 19 m is approximately 62 ft.
(Erase to reveal)

$$19 \cancel{\text{m}} \times \frac{1.0936 \cancel{\text{yd}}}{1 \cancel{\text{m}}} \times \frac{3 \text{ft}}{1 \cancel{\text{yd}}} = \underline{62 \text{ ft}}$$

19 m → yd → ft



CHECK YOUR UNDERSTANDING

TRY THIS ONE...

13. The tallest structure in Canada is the CN Tower in Toronto. It is 553.3 m tall. The tallest structure in the United States is the Willis Tower, previously known as the Sears Tower, in Chicago. It is 1451 ft. tall.

- Determine the height of the CN Tower in feet and the height of the Willis Tower in metres.
- Which structure is taller? Explain how you know.
- Determine the difference in the heights of the structures, in metres and to the nearest foot.



$$a) 553.3 \text{ m} \times \frac{3.2808 \text{ ft}}{1 \text{ m}} = 1815.26664 \text{ ft}$$


$$1451 \text{ ft} \times \frac{1 \text{ m}}{3.2808 \text{ ft}} = 442.27 \text{ m}$$

b) CN Tower

c) 364 ft 11 m

Example 2 Converting between Miles and Kilometres

CHECK YOUR UNDERSTANDING

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

114 km

Takoda

$$68 \text{ mi.} \times \frac{1.6093 \text{ km}}{1 \text{ mi.}} = 109.43 \text{ km}$$

Example 3 Solving a Problem that Involves Unit Conversions

Alex is 6 ft. 2 in. tall. To list his height on his driver's license application, Alex needs to convert this measurement to centimetres.

What is Alex's height to the nearest centimetre?



SOLUTION

Alex is approximately 185 cm tall.

(Erase to reveal)

$$6\cancel{\text{ft}} \times \frac{12\text{ in}}{\cancel{1\text{ft}}} \times \frac{2.54\text{ cm}}{1\text{ in.}} = 182.88\text{ cm}$$

$$\underline{2\text{ in.}} \times \frac{2.54\text{ cm}}{1\text{ in.}} = \frac{5.08\text{ cm}}{187.96\text{ cm}}$$



CHECK YOUR UNDERSTANDING

Example 4 Estimating and Calculating Using Unit Conversions

A truck driver knows that her semitrailer is 3.5 m high. The support beams of a bridge are 11 ft. 9 in. high. Will the vehicle fit under the bridge? Justify the answer.



SOLUTION

(Erase to reveal)

$$350 \text{ cm} = 11.4829 \dots \text{ ft.}$$

This measurement is a little less than $11\frac{1}{2}$ ft. or 11 ft. 6 in., so the vehicle will fit under the bridge.



CHECK YOUR UNDERSTANDING

$$11.75 \text{ ft} + \frac{9}{12} = 11.75 \text{ ft} + 0.75 \text{ ft} = 12.5 \text{ ft}$$

$$12.5 \text{ ft} \times \frac{1 \text{ m}}{3.2808 \text{ ft}} = 3.58 \text{ m}$$

TRY THIS ONE...

11. A retail fabric store advertises a storewide sale. It lists a certain material for $\$0.89/\text{yd}$. A fabric warehouse is selling the same material for $\$0.93/\text{m}$.

- Which store has the better price?
- Use mental math and estimation to justify that the answer is reasonable.

$1 \text{ yd} = 0.9144 \text{ m}$

$$\frac{\$0.89}{1 \text{ yd}} \times \frac{1.0936 \text{ yd}}{1 \text{ m}} = \frac{\$0.97}{1 \text{ m}}$$

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



LAND AREAS...

18. The imperial unit to measure an area of land is the *acre*. During the initial agricultural expansion of the western provinces, the Canadian government offered 160 acres of land free to settlers who were willing to immigrate to Canada. Today, Canada uses the *hectare* to measure land area:

$$1 \text{ hectare} \doteq 2.471 \text{ acres}$$

- a) How many hectares did each settler receive?
b) One hundred sixty acres is a square with a side length of one-half a mile. How many hectares are in one square mile?

1 hectare is equal to 2.471 acres 

$$160 \text{ acres} \times \frac{1 \text{ hectare}}{2.471 \text{ acres}} = 65 \text{ hectares}$$

HOMework...

Page 159-160: #1 - 7