

Math 10

Lesson 6–3 Relating SI and Imperial Units

I. Lesson Objectives:

- 1) Convert measurements between SI units and imperial units.

II. Converting between SI units and imperial units

In Lesson 5-1 we learned how to convert between different imperial units. In this lesson you will use the same techniques to convert between SI units and imperial units. You may find the conversion table provided on your formula sheet to be quite helpful. Enjoy!!

Relationships between SI Units and Imperial Units
1 mi. = 1.609 km
1 yd. = 0.9144 m
1 ft. = 0.3048 m = 30.48 cm
1 in. = 2.54 cm

Question 1

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

Question 2

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

Question 3

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



Question 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? Justify your answer.

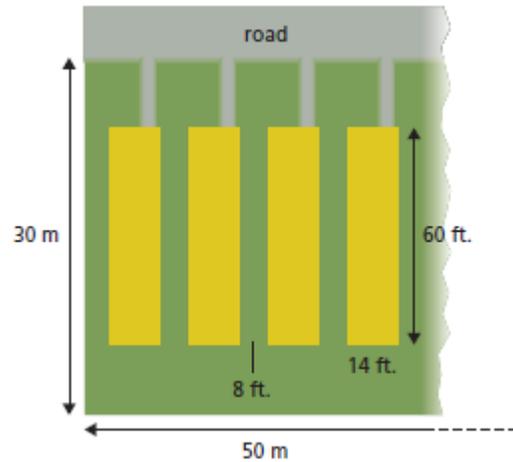
III. Assignment

- Convert each measurement. Answer to the nearest tenth.
 - 16 in. to centimetres
 - 4 ft. to metres
 - 5 yd. to metres
 - 1650 yd. to kilometres
 - 6 mi. to kilometres
 - 2 in. to millimetres
- Convert each measurement.
 - 25 mm to the nearest inch
 - 2.5 m to the nearest foot
 - 10 m to the nearest yard
 - 150 km to the nearest mile
- Convert each measurement. Answer to the nearest tenth.
 - 1 ft. 10 in. to centimetres
 - 2 yd. 2 ft. 5 in. to centimetres
 - 10 yd. 1 ft. 7 in. to metres
- The Fraser River is approximately 1375 km long. The Tennessee River is approximately 886 mi. long. Which river is longer? Justify your answer.
- On a road trip in Montana, USA, Elise sees this road sign:



Elise tests the accuracy of her car's odometer and tracks the distance she drove from that sign to Helena's city limits. Her odometer showed 142 km. Is the odometer accurate? Explain.

6. A retail fabric store advertises a storewide sale. It lists a certain material for \$0.89/yd. A fabric warehouse is selling the same material for \$0.93/m. Which store has the better price?
7. An electrician was hired to run the wires for a surround-sound stereo speaker system. She purchased 2 rolls of 14-gauge speaker wire. Each roll contains 4 m of wire. For each of 2 speakers, 2 ft. of wire are required. For each of the other 2 speakers, 11 ft. of wire are required. Will the electrician have enough wire? If your answer is no, what length of wire in centimetres will she need? If your answer is yes, what length of wire in centimetres will be left over?
8. A real-estate developer purchased a 30-m by 50-m plot of land to create a mobile home park. The developer sketched this plan: What is the maximum number of homes the developer can fit on this land?



9. 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 hectare = 2.471 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?