Activity 3.2h Unit Conversion Homework Answer Key

Complete each of the following. When a calculation is required, show your work.

1. Convert each of the following quantities to the indicated units. Use the appropriate number of significant figures to express your answer unless otherwise indicated.

   a. 0.005098 Megaliters to liters. Record your answer in whole liters.

   5098 L

   b. 57.2 inches to feet.

   4.77 ft

   c. 4 ft – 6 ½ in. to inches. Record your answer in fractional inches.

   $54\frac{1}{2}$ in.

   d. 6 ft – 9 inches to decimal feet. Record your answer to the nearest hundredth of a foot.

   6.75 ft

   e. 935.6 inches to yards. Record your answer to the nearest hundredth of a yard.

   25.99 yd

   f. 23.5 million nanometers to millimeters

   23.5 mm

   g. 98.6 inches to meters.

   2.50 m

2. The width of a strand of fiber is 19.2 micrometers. If 1500 strands are adhered side by side, how wide would the resulting fabric be if measured in centimeters?

   2.88 cm

3. You are planning to buy a new couch for your family room. Before you leave for the furniture store, you measure the available space and conclude that the couch should be between 5' - 10" and 6' - 8" long. At the store you find a couch that you like. The specification sheet on the couch indicates that that the couch is 78 inches long.

   a. What are the limits on the couch length in inches?

   70 in. < L < 80 in. **where L = allowable couch length**

   b. What is the length of the couch in feet and inches? Hint: Convert the measurement to decimal feet first.

   6 ft – 6 in.

c. Will the couch fit into the available space?

Yes, the couch length is within length limits.

4. Measure and record your height in feet and inches and then convert your height to meters and then to centimeters.

   Feet-inches: <u>Answers will vary</u>

   Meters: <u>Answers will vary. An example calculation is shown below.</u>

   Centimeters: <u>Answers will vary</u>

5. [Challenge] You are hoping to receive a scholarship for volleyball and are entering your personal information and statistics on a secure website to be reviewed by recruiters. The website requires that you report your height in feet and inches to the nearest ¼ inch. You have a decimal tape measure and find that you are 5.89 feet tall. What height measurement will you report in order to honestly and accurately report your height?

$$5 \text{ ft } + 10\frac{3}{4}\text{in.}$$

6. The posted speed limit in many parts of Europe is 100 km/hr. What is the equivalent speed limit in miles per hour?

   62.1 mph

7. In the drawing below, some lengths are given in SI units, others in U S Customary units. Convert each mm measurement to inches and round to the nearest hundredth of an inch. Convert each inch measurement to the nearest millimeter. Record each answer within the parenthesis under the corresponding dimension.

108mm
(4.25)in

3.75 in.
(95)mm

R6mm x (8)
(0.25)in

6mm
(0.25)in

2.75 in.   58mm
|(70)mm|(2.28)in

Ø 0.125 in.
(3) mm

5mm
(0.20)in

0.25 in.
(6)mm

5mm
(0.20)in