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Convert 22 gallons to quarts.

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Example 2:

How many fluid ounces does a 2-L bottle of soda hold?

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Example 3:

Including the end zone, what is the length of a football field, in inches? (Hint: A football field is 120 yards long)

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Example 4:

A model airplane flies 22 feet in 2 seconds. What is the airplane's speed in miles per hour?

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Example 5:

Convert 110 mi per hour to feet per second.

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# dimensional analysis

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Example 1:

Convert 22 gallons to quarts.

$$\frac{22 \text{ gallons}}{1} \times \frac{4 \text{ quarts}}{1 \text{ gallon}} = 88 \text{ quarts}$$

Example 2:

How many fluid ounces does a 2-L bottle of soda hold?

$$\frac{2 \text{ liters}}{1} \times \frac{4.23 \text{ cups}}{1 \text{ liter}} \times \frac{8 \text{ fl oz}}{1 \text{ cup}} = 67.68 \text{ fl oz}$$

Example 3:

Including the end zone, what is the length of a football field, in inches? (Hint: A football field is 120 yards long)

$$\frac{120 \text{ yards}}{1} \times \frac{3 \text{ feet}}{1 \text{ yard}} \times \frac{12 \text{ inches}}{1 \text{ foot}} = 4320 \text{ inches}$$

Example 4:

A model airplane flies 22 feet in 2 seconds. What is the airplane's speed in miles per hour?

$$\frac{22 \text{ feet}}{2 \text{ seconds}} \times \frac{1 \text{ mile}}{5280 \text{ feet}} \times \frac{60 \text{ seconds}}{1 \text{ minute}} \times \frac{60 \text{ minutes}}{1 \text{ hour}} = \frac{79200 \text{ miles}}{10560 \text{ hour}} = 7.5 \text{ mi/h}$$

Example 5:

Convert 110 mi per hour to feet per second.

$$\frac{110 \text{ miles}}{1 \text{ hour}} \times \frac{5280 \text{ feet}}{1 \text{ mile}} \times \frac{1 \text{ hour}}{60 \text{ minutes}} \times \frac{1 \text{ minute}}{60 \text{ seconds}} = \frac{580800 \text{ feet}}{3600 \text{ seconds}} = 161.3 \text{ ft/s}$$

dimensional analysis

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