

## Exercise 74

Milk is sold by the liter in many countries. What is the volume of exactly 1/2 gal of milk in liters?

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### Solution

Start with 1/2 gal and use conversion factors to write the units in liters.

$$\frac{1}{2} \cancel{\text{gal}} \times \frac{4 \cancel{\text{quarts}}}{1 \cancel{\text{gal}}} \times \frac{1 \text{ L}}{1.0567 \cancel{\text{quarts}}} \approx 1.8927 \text{ L}$$

Note that the volume is exactly 1/2 gal, so it has infinitely many significant figures. The answer is rounded to five significant figures because there are only five significant figures in 1.0567 quarts. It's actually the case that

$$1 \text{ L} = 1.056688149 \dots \text{ quarts.}$$