

## Exercise 75

A long ton is defined as exactly 2240 lb. What is this mass in kilograms?

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### Solution

Start with one long ton and use the conversion factor on page 45 that says  $1 \text{ kg} = 2.2046 \text{ lb}$ .

$$1 \cancel{\text{ long ton}} \times \frac{2240 \cancel{\text{ lb}}}{1 \cancel{\text{ long ton}}} \times \frac{1 \text{ kg}}{2.2046 \cancel{\text{ lb}}} \approx 1016.1 \text{ kg}$$

Note that a long ton is defined exactly as 2240 lb, so it has infinitely many significant figures. The answer is rounded to five significant figures because there are only five significant figures in 2.2046 lb. It's actually the case that

$$1 \text{ kg} = 2.204622476 \dots \text{ lb.}$$