

Exercise 1.6

A square field measuring 100.0 m by 100.0 m has an area of 1.00 hectare. An acre has an area of 43,600 ft². If a lot has an area of 12.0 acres, what is the area in hectares?

Solution

The first sentence defines a hectare.

$$1.00 \text{ hectare} = 100.0 \text{ m} \times 100.0 \text{ m} = 10^4 \text{ m}^2$$

The second sentence defines an acre.

$$1 \text{ acre} = 43\,600 \text{ ft}^2$$

Use these two conversion factors to determine the area in the desired units.

$$12.0 \text{ acres} \times \frac{43\,600 \text{ ft}^2}{1 \text{ acre}} \times \left(\frac{1 \cancel{\text{m}}}{3.28 \cancel{\text{ft}}} \right)^2 \times \frac{1.00 \text{ hectare}}{10^4 \cancel{\text{m}^2}} = \frac{(12.0)(43\,600)(1)^2(1.00) \text{ hectare}}{(1)(3.28)^2(10^4)} \approx 4.86 \text{ hectare}$$