

Exercise 61

Soccer is played with a round ball having a circumference between 27 and 28 in. and a weight between 14 and 16 oz. What are these specifications in units of centimeters and grams?

Solution

Multiply by the appropriate conversion factors to change to the desired units.

$$27 \text{ in} = 27 \cancel{\text{in}} \times \frac{2.54 \text{ cm}}{1 \cancel{\text{in}}} \approx 69 \text{ cm}$$

$$28 \text{ in} = 28 \cancel{\text{in}} \times \frac{2.54 \text{ cm}}{1 \cancel{\text{in}}} \approx 71 \text{ cm}$$

$$14 \text{ oz} = 14 \cancel{\text{oz}} \times \frac{28.349 \text{ g}}{1 \cancel{\text{oz}}} \approx 4.0 \times 10^2 \text{ g}$$

$$16 \text{ oz} = 16 \cancel{\text{oz}} \times \frac{28.349 \text{ g}}{1 \cancel{\text{oz}}} \approx 4.5 \times 10^2 \text{ g}$$