Exercise 1.17

A rather ordinary middle-aged man is in the hospital for a routine check-up. The nurse writes the quantity 200 on his medical chart but forgets to include the units. Which of the following quantities could the 200 plausibly represent? (a) his mass in kilograms; (b) his height in meters; (c) his height in centimeters; (d) his height in millimeters; (e) his age in months.

Solution

Convert the given units to more familiar units and see what's reasonable.

$$200 \ \cancel{kg} \times \frac{2.205 \ lb}{1 \ \cancel{kg}} \approx 441 \ lb$$

$$200 \ \cancel{m} \times \frac{3.28 \ ft}{1 \ \cancel{m}} \approx 656 \ ft$$

$$200 \ \cancel{cm} \times \frac{1 \ \cancel{in}}{2.54 \ \cancel{cm}} \times \frac{1 \ ft}{12 \ \cancel{in}} \approx 6.56 \ ft$$

$$200 \ \cancel{mm} \times \frac{1 \ \cancel{cm}}{10 \ \cancel{mm}} \times \frac{1 \ \cancel{in}}{2.54 \ \cancel{cm}} \times \frac{1 \ ft}{12 \ \cancel{in}} \approx 0.656 \ ft$$

$$200 \ \cancel{months} \times \frac{1 \ years}{12 \ \cancel{months}} \approx 16.7 \ years$$

Only the height in centimeters seems plausible. The weight in kilograms is a big stretch, but that could be why the man is in the hospital and why the nurse thinks it's important enough to note.