

## Question Q1.5

What is your height in centimeters? What is your weight in newtons?

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### Solution

Someone with a height of 6 feet has a height in centimeters of

$$6 \text{ ft} = 6 \cancel{\text{ft}} \times \frac{12 \cancel{\text{in}}}{1 \cancel{\text{ft}}} \times \frac{2.54 \text{ cm}}{1 \cancel{\text{in}}} \approx 183 \text{ cm}.$$

Someone with a weight of 180 pounds has a mass in kilograms of

$$180 \text{ lb} = 180 \cancel{\text{lb}} \times \frac{1 \text{ kg}}{2.205 \cancel{\text{lb}}} \approx 81.6 \text{ kg}$$

Multiply this result by  $g$ , the acceleration due to gravity, to get the weight in newtons.

$$(81.6 \text{ kg}) \left( 9.8 \frac{\text{m}}{\text{s}^2} \right) = 800 \text{ N}$$