Problem 68

A good-quality measuring tape can be off by 0.50 cm over a distance of 20 m. What is its percent uncertainty?

Solution

To obtain the percent uncertainty, divide the uncertainty by the distance and multiply by 100%. Make sure the units of length are the same so that they cancel out.

$$\frac{0.50 \; \cancel{\text{cm}} \times \frac{1 \, \cancel{\text{m}}}{100 \, \cancel{\text{cm}}}}{20 \, \cancel{\text{m}}} \times 100\% = 0.025\%$$