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Problem 2

The wall lengths of a backyard shed are measured and found to be 10.0 ft, 5.0 ft, 5.0 ft, and 8.0 ft. Each measurement has an uncertainty of 0.5 ft. Find P_m .

$$\begin{aligned}P &= l_1 + l_2 + w_1 + w_2 \\P &= 10.0 \text{ ft} + 5.0 \text{ ft} + 5.0 \text{ ft} + 8.0 \text{ ft} \\&= 28.0 \text{ ft}.\end{aligned}$$

$$\begin{aligned}\Delta P &= \sqrt{4(0.5 \text{ ft})^2} \\&= 1 \text{ ft}.\end{aligned}$$

$$P_m = 28.0 \text{ ft} \pm 1 \text{ ft}.$$