

Extra

Temp readings = 12.5° , 12.7° and 12.4°

Calculate:

- Absolute Uncertainty
- Fractional Uncertainty
- Percent Uncertainty

(a) Absolute uncertainty

$$= \frac{1}{2} (\text{Range})$$

$$= \frac{1}{2} (12.7 - 12.4) = 0.15$$

which rounds

to 2°

Value = average + Ab. uncertainty

$$= \left[\frac{1}{3} (\text{values}) \right] + \text{Ab. uncertainty}$$

$$= \left[\frac{12.5 + 12.7 + 12.4}{3} \right] + 2$$

$$= 12.5^{\circ} + 2^{\circ}$$

(b) Fractional Uncertainty

$$= \frac{2}{12.5} = 0.16$$

(c) Percentage Uncertainty

$$= \frac{2}{12.5} \times 100$$

$$= 1.6\%$$