

Example 2

Determine the precision and uncertainty of each of the following measurements.

a) 64 km The precision is 1 km, because the measurement is going up by 1 km.

$$\text{Uncertainty} = \frac{\text{Precision}}{2} \Rightarrow \frac{1 \text{ km}}{2} = \boxed{0.5 \text{ km}}$$

b) 11.78 seconds

$$\text{Precision} = 0.01 \text{ secs.}$$

$$\text{Uncertainty} = \frac{0.01}{2} = \boxed{0.005 \text{ seconds}}$$

c) 15.2 cm

$$\text{Precision} = 0.1 \text{ cm}$$

$$\text{Uncertainty} = \frac{0.1}{2} = \boxed{0.05 \text{ cm}}$$

Example 3

The weatherperson says that the temperature outside is 35.8°C. Determine the uncertainty of this measurement and then write in the form

measurement \pm uncertainty

① First, calculate the precision.
since the measurement goes up by 0.1°C, the
Precision = 0.1°C

$$\text{② Uncertainty} = \frac{0.1^\circ\text{C}}{2}$$

Example 4

You are told that the height of a tree is 3.72 metres. Write this measurement in the form

measurement \pm uncertainty

$$\text{Uncertainty} = \frac{\text{Precision}}{2}$$

$$\text{Uncertainty} = \frac{0.01 \text{ m}}{2} \Rightarrow 0.005 \text{ m}$$

$$\boxed{3.72 \pm 0.005 \text{ m}}$$