

- 2 A microphone detects a musical note of frequency f . The microphone is connected to a cathode-ray oscilloscope (c.r.o.). The signal from the microphone is observed on the c.r.o. as illustrated in Fig. 2.1.

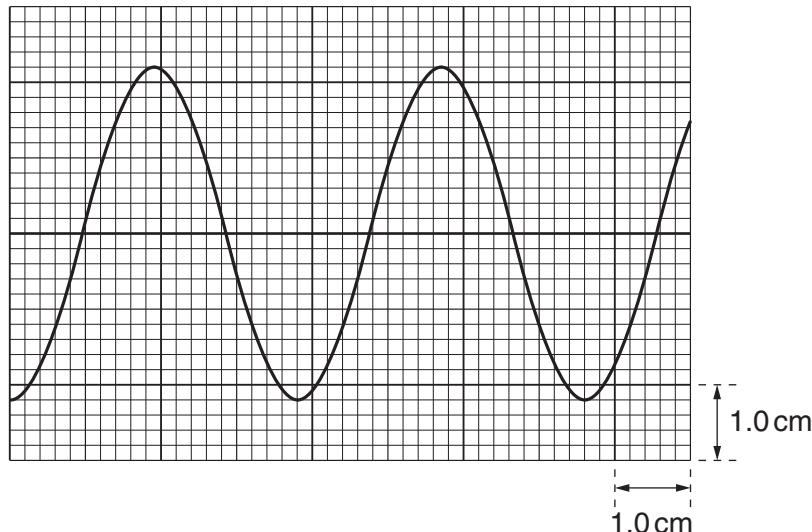


Fig. 2.1

The time-base setting of the c.r.o. is 0.50 ms cm^{-1} . The Y-plate setting is 2.5 mV cm^{-1} .

- (a) Use Fig. 2.1 to determine

- (i) the amplitude of the signal,

$$\text{amplitude} = \dots \text{ mV} [2]$$

- (ii) the frequency f ,

$$f = \dots \text{ Hz} [3]$$

- (iii) the actual uncertainty in f caused by reading the scale on the c.r.o.

$$\text{actual uncertainty} = \dots \text{ Hz} [2]$$

- (b) State f with its actual uncertainty.

$$f = \dots \pm \dots \text{ Hz} [1]$$