

- 2 A source of radio waves sends a pulse towards a reflector. The pulse returns from the reflector and is detected at the same point as the source. The emitted and reflected pulses are recorded on a cathode-ray oscilloscope (c.r.o.) as shown in Fig. 2.1.

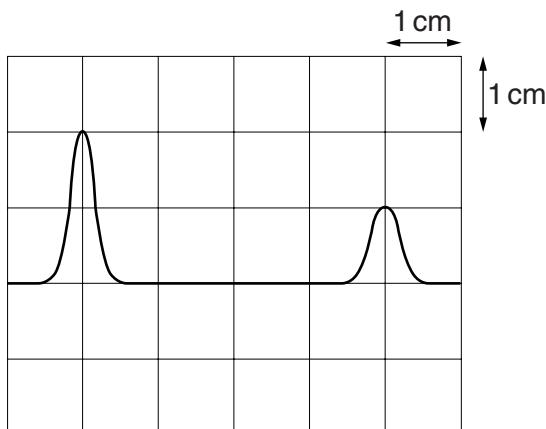


Fig. 2.1

The time-base setting is $0.20 \mu\text{s cm}^{-1}$.

- (a) Using Fig. 2.1, determine the distance between the source and the reflector.

$$\text{distance} = \dots \text{m} [4]$$

- (b) Determine the time-base setting required to produce the same separation of pulses on the c.r.o. when sound waves are used instead of radio waves.

The speed of sound is 300 m s^{-1} .

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[3]