4 A student is investigating an electrical signal using a cathode-ray oscilloscope (c.r.o).

The frequency of the signal is 50 kHz.

Which time-base setting on the oscilloscope should be used?

A $50\,\text{ms}\,\text{cm}^{-1}$ **B** $1\,\text{ms}\,\text{cm}^{-1}$ **C** $10\,\mu\text{s}\,\text{cm}^{-1}$ **D** $0.5\,\mu\text{s}\,\text{cm}^{-1}$

5 A student wishes to measure a distance of about 10 cm to a precision of 0.01 cm.

Which measuring instrument should be used?

A metre rule

B micrometer

C tape measure

D vernier calipers

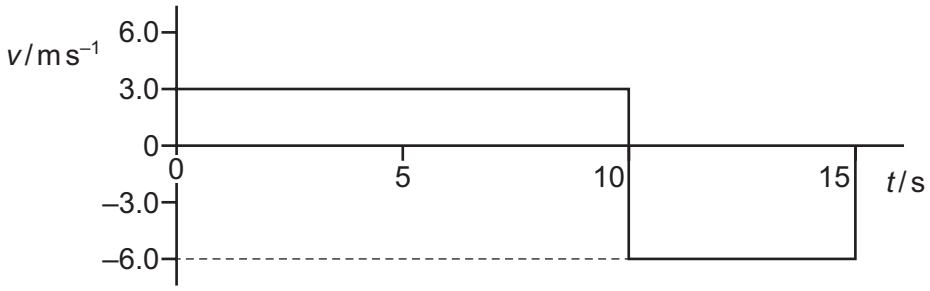
6 An aircraft, initially stationary on a runway, takes off with a speed of $85\,\text{km}\,\text{h}^{-1}$ in a distance of no more than 1.20 km.

What is the minimum constant acceleration necessary for the aircraft?

A $0.23\,\text{m}\,\text{s}^{-2}$ **B** $0.46\,\text{m}\,\text{s}^{-2}$ **C** $3.0\,\text{m}\,\text{s}^{-2}$ **D** $6.0\,\text{m}\,\text{s}^{-2}$

7 A radio-controlled toy car travels along a straight line for a time of 15 s.

The variation with time t of the velocity v of the car is shown.



What is the average velocity of the toy car for the journey shown by the graph?

A $-1.5\,\text{m}\,\text{s}^{-1}$ **B** $0.0\,\text{m}\,\text{s}^{-1}$ **C** $4.0\,\text{m}\,\text{s}^{-1}$ **D** $4.5\,\text{m}\,\text{s}^{-1}$

8 The acceleration of free fall on Pluto is $0.66\,\text{m}\,\text{s}^{-2}$.

An object weighs 6.0 N on Earth.

What would this object weigh on Pluto?

A 0.40 N **B** 0.93 N **C** 4.0 N **D** 39 N