

- 3 When a constant braking force is applied to a vehicle moving at speed v , the distance d moved by the vehicle in coming to rest is given by the expression

$$d = kv^2$$

where k is a constant.

When d is measured in metres and v is measured in metres per second, the constant has a value of k_1 .

What is the value of the constant when the distance is measured in metres, and the speed is measured in kilometres per hour?

- A** $0.0772 k_1$ **B** $0.278 k_1$ **C** $3.60 k_1$ **D** $13.0 k_1$

- 4 A whale produces sound waves of frequency 5 Hz. The waves are detected by a microphone and