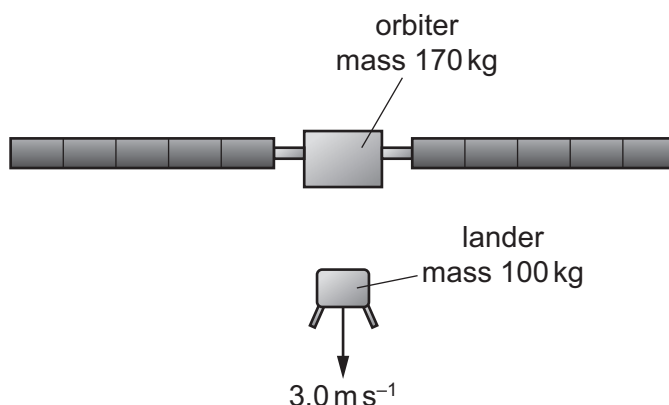


- 9 The space probe Rosetta was designed to investigate a comet. The probe consisted of an orbiter and a lander. The orbiter had a mass of 170 kg and the lander had a mass of 100 kg. When the two parts separated, the lander was pushed towards the surface of the comet so that its change in velocity towards the comet was 3.0 m s^{-1} .



Assume that the orbiter and lander were an isolated system.

The orbiter moved away from the comet during the separation.

What was the change in the speed of the orbiter?

- A** 1.8 m s^{-1} **B** 2.3 m s^{-1} **C** 3.0 m s^{-1} **D** 5.1 m s^{-1}

- 10 A positively charged oil droplet falls in air in a uniform electric field that is vertically upwards. The droplet has a constant terminal speed v_0 and the electric field strength is E .

The magnitude of the force due to air resistance acting on the droplet is proportional to the speed of the droplet.

Which graph shows the variation with E of v_0 ?

