

- 11** A satellite orbits around the Earth with a linear speed of v . The gravitational potential of that orbit is -25 MJ kg^{-1} . The thrusters of the satellite are then fired and it now moves to a new orbit where the gravitational potential is -16 MJ kg^{-1} .

What is the linear speed of the satellite in the new orbit?

A $\frac{4}{5}v$

B $\frac{16}{25}v$

C $\frac{5}{4}v$

D $\frac{25}{16}v$