9 An astronomical gas cloud has mass M and radius R. The gravitational potential on its surface S is $-\frac{GM}{R}$ and at its centre 0 it is $-\frac{3GM}{2R}$

A unit mass is moved slowly by means of an external force from the surface S to the centre O. What is the work done on the mass by the external force?

A $\quad -\dfrac{5GM}{2R}$ **B** $\quad -\dfrac{GM}{2R}$ **C** $\quad \dfrac{GM}{2R}$ **D** $\quad \dfrac{5GM}{2R}$

10 On a fairground ride, passengers are rotated in a vertical wheel of radius 4.00 m. Passengers