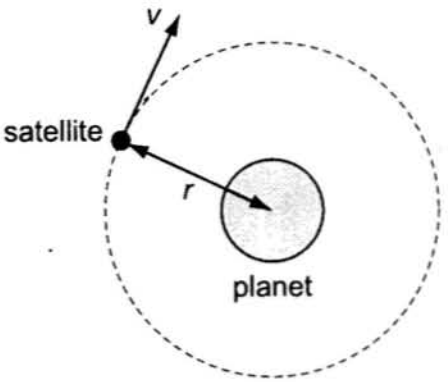
**14** A satellite of mass $m$ moves in a circular orbit at speed $v$ and distance $r$ from the centre of a planet of mass $M$.




What expression gives the total energy of the satellite?

**A** $m\left(\frac{v^2}{r} - \frac{GM}{r}\right)$

**B** $m\left(\frac{v^2}{2} - \frac{GM}{r}\right)$

**C** $m\left(\frac{v^2}{r} + \frac{GM}{r}\right)$

**D** $m\left(\frac{v^2}{2} + \frac{GM}{r}\right)$