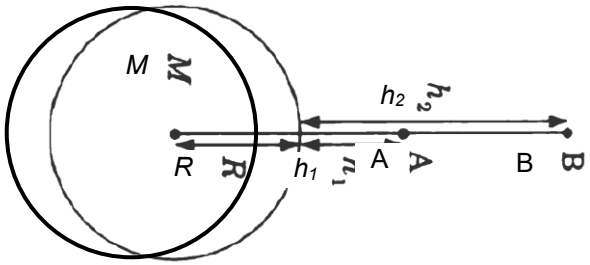
8

An object of mass m located at A at a height h_1 from the Earth's surface is brought to position B at a height h_2 measured with respect to the Earth's surface.



If h_1 and h_2 are of same order of magnitude as the radius R of the Earth, what is the expression for the increase in gravitational potential energy in this process?

A

$mg(h_2 - h_1)$

B

$GMm\left(\frac{1}{R+h_1} - \frac{1}{R+h_2}\right)$

C

$GMm\left(\frac{1}{h_1} - \frac{1}{h_2}\right)$

D

$-\frac{GMm}{R+h_2}$