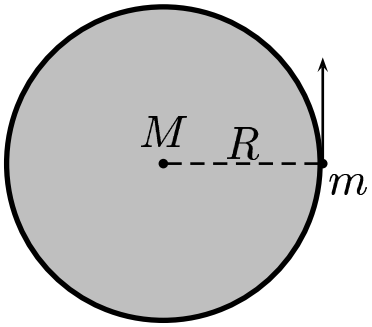
Denote the mass and radius of the earth by M and R. Assume effects due to the presence of other planets and the sun are negligible.



Find the minimum kinetic energy of a rocket with mass m, which allows it to move infinitely far away from the earth. This kinetic energy is referred to as the "escape kinetic energy". Choose one

A) Escape kinetic energy is $\dfrac{G\,m\,M}{R}$.

B) Escape kinetic energy is $\dfrac{G\,m\,M}{2\,R}$.

C) Escape kinetic energy is $\dfrac{G\,m\,M}{R^2}$.

D) Escape kinetic energy is $\dfrac{G\,m\,M}{2\,R^2}$.

When the rocket if infinitely far away from the earth, its minimum total energy is 0.

So, the minimum kinetic energy K required may be determined through the relation

$$U(R) + K = 0\,.$$

Thus

$$K = \frac{G\,m\,M}{R}\,.$$

Answer **A**

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