4 A satellite of mass m is on the Earth's surface.

The satellite is moved into a circular orbit of height h above the Earth.

The mass of the Earth is M and the radius of the Earth is R.

Which of the following gives the change in gravitational potential energy of the satellite?

☒ **A** $\frac{GM}{(R+h)} - \frac{GM}{R}$

☒ **B** $\frac{GMm}{R} - \frac{GMm}{(R+h)}$

☒ **C** $\frac{GM}{(R+h)^2} - \frac{GM}{R^2}$

☒ **D** $\frac{GMm}{R^2} - \frac{GMm}{(R+h)^2}$

(Total for Question 4 = 1 mark)