

- 19 An object of mass m is dropped onto the surface of two planets, X and Y, which have no atmosphere.

The height from which the object is dropped and the change in gravitational potential energy of the object, for each planet, are given in the table.

	height/m	change in gravitational potential energy
planet X	3	ΔE
planet Y	4	$4\Delta E$

The acceleration of free fall near the surface of planet X is g_X .

What is the acceleration of free fall near the surface of planet Y?

A $\frac{3}{4}g_X$

B $\frac{4}{3}g_X$

C $3g_X$

D $4g_X$