

8. The escape velocity v of an object is the minimum velocity required to allow the object to escape the gravitational field of a planet.

The following relationship is used to determine the escape velocity

$$v = \sqrt{\frac{2GM}{r}}$$

where G is the Universal Constant of Gravitation

M is the mass of the planet

r is the radius of the planet.

A planet has a mass of 4.87×10^{24} kg and a radius of 6.05×10^6 m.

Based on this information, the escape velocity from this planet is

- A $1.66 \times 10^{-28} \text{ m s}^{-1}$
- B $1.29 \times 10^{-14} \text{ m s}^{-1}$
- C $7.33 \times 10^3 \text{ m s}^{-1}$
- D $1.04 \times 10^4 \text{ m s}^{-1}$
- E $3.97 \times 10^9 \text{ m s}^{-1}$.