

Forces

2. Gravity

CONCEPT 3

TEST YOURSELF

GRAVITY AROUND THE SOLAR SYSTEM

KNOW

Q1 Using the formula, $W = m \times g$, calculate the weight of the following objects on the surface of the Earth.

- (a) a 2.5 kg rock (b) a 65.7 kg man
(c) 0.8 kg Guinea pig (d) a 100 g apple

APPLY

Q2 Using the formula, $W = m \times g$, calculate the mass of the following objects on the surface of the Earth.

- (a) a woman who weighs 525 N (b) a football with a weight of 45 N

Q3 On board the International Space Station which has an average orbital altitude of 380 km a 5 kg laptop was found to have a weight of 43.75 N. What is the gravitational field strength of the Earth on board the International Space Station?

EXTEND

Use the information in the table to answer the next question.

- Q4 What is the weight of the following objects?
(a) a 120 kg astronaut (with suit) on the Moon
(b) a 23.5 kg robotic rover on the Mars

Solar System Body	Gravitational field strength (N/kg)
Moon	1.6
Mars	3.8
Venus	9
Neptune	11