

**Gateway Science Physics A**

**J249/02 Physics A P5-P8 and P9 (Foundation Tier)**

**Question Set 21**

21

Rockets carry satellites into space.

- (a) Satellites are kept in orbit around a planet by a force.

Name this force?

Gravitational force

[1]

- (b) Name the Earth's natural satellite.

The moon

[1]

- (c) A vehicle called the Mars Rover was sent to Mars in a rocket.



**Mars Rover**

The Mars Rover has a mass of 185 kg.

The gravitational field strength ( $g$ ) on Mars is 3.75 N/kg.

Calculate the weight of the Mars Rover vehicle on Mars.

State the unit for weight. - *Newtons*

Show your working and give your answer to **3** significant figures

$$\begin{aligned} W &= mg \\ &= 185 \times 3.75 = 693.75 \text{ N} \\ &= 694 \text{ N} \end{aligned}$$

Answer = .....694..... Unit = .....N.....

[5]

- (d) (i) Why did the Mars Rover weigh more on Earth than on Mars?

Because the gravitational field strength on Earth (9.81) is greater than that of Mars'.

[1]

**Total Marks for Question Set 21: 8**

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