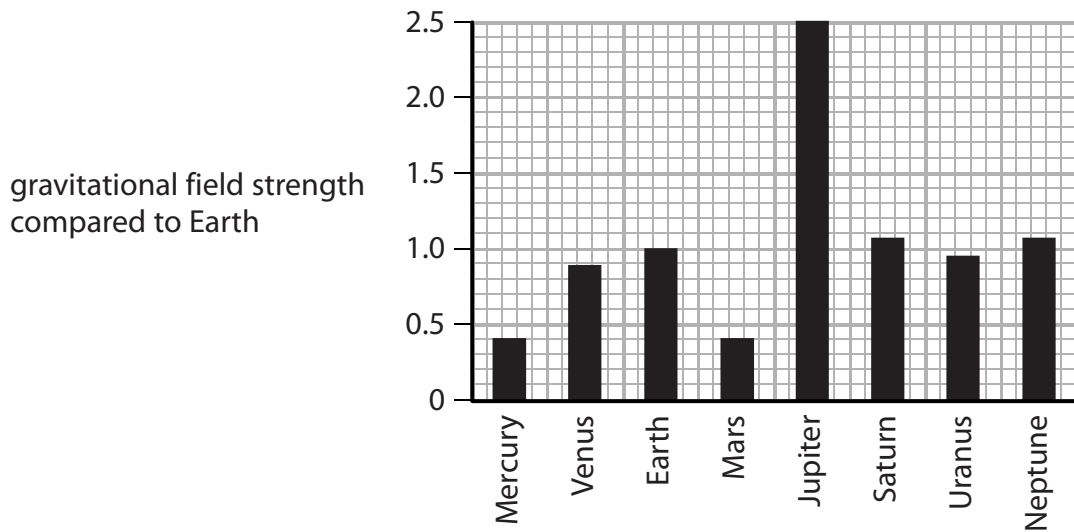


8 This question is about planets in the solar system.

(a) Planets in the solar system have different sizes and masses.

The bar chart shows the gravitational field strength of each planet compared to Earth.



(i) Which of these statements is correct?

(1)

- ☐ **A** A 1 kg mass would weigh more on Venus than on Neptune
- ☐ **B** A 1 kg mass would weigh more on Earth than on Uranus
- ☐ **C** A 1 kg mass would weigh more on Mercury than on Saturn
- ☐ **D** A 1 kg mass would weigh more on Mars than on Jupiter

(ii) On Earth, the gravitational field strength is 10 N/kg .

Which of these is the value for the gravitational field strength on Mars?

(1)

- ☐ **A** 0.04 N/kg
- ☐ **B** 0.4 N/kg
- ☐ **C** 4 N/kg
- ☐ **D** 25 N/kg

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(b) Deimos is a natural satellite of Mars.

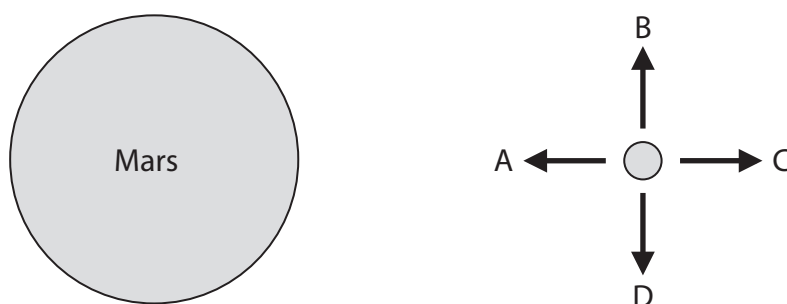
Deimos has an orbital time period of 1820 minutes and an orbital speed of 1350 m/s.

(i) Calculate the orbital radius of Deimos.

(4)

orbital radius = m

(ii) The diagram shows Deimos in orbit around Mars.



Which arrow shows the direction of the force of gravity that Mars exerts on Deimos?

(1)

- ☐ A
- ☐ B
- ☐ C
- ☐ D

(Total for Question 8 = 7 marks)

