

2 Table 2.1 contains information about the planet Mars.

Table 2.1

mass	$6.4 \times 10^{23} \text{ kg}$
gravitational field strength at surface	3.7 N/kg
average density	3900 kg/m^3

(a) Define gravitational field strength.

.....
..... [1]

(b) (i) An object has a weight of 42 N at the surface of the Earth.

Calculate the weight of the object at the surface of Mars.

weight = [2]

(ii) Calculate the volume of Mars.

volume = [2]

(c) Fig. 2.1 shows a space buggy that is tested on Earth. The buggy is travelling at a constant speed in a straight line. The driving force on the buggy is 30 N.

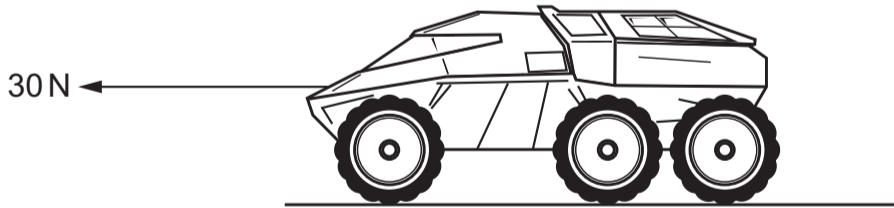


Fig. 2.1

(i) Draw and label **one** arrow on Fig. 2.1 to show the size and direction of the resistive forces on the buggy. [2]

(ii) Air resistance on Mars is less than air resistance on Earth. The same driving force, 30 N, is exerted on the buggy on Mars.

1. State the effect this has on the resultant force on the buggy on Mars.

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2. State the relationship between resistive forces, driving force and resultant force.

..... [1]