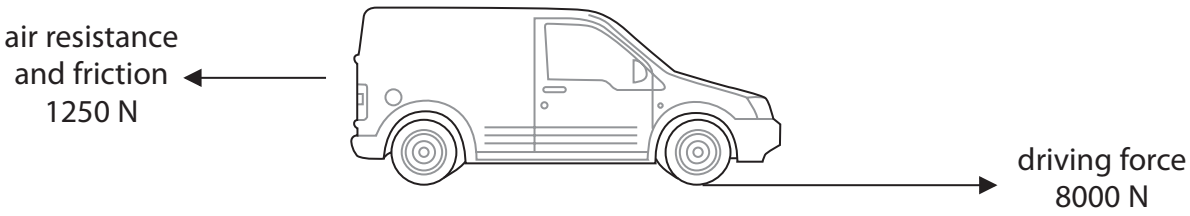
6 (a) Which of these quantities is a scalar?

(1)

- ☒ **A** acceleration
- ☒ **B** energy
- ☒ **C** force
- ☒ **D** velocity

(b) The diagram shows the horizontal forces acting on a van at a particular instant, as it accelerates.



(i) Calculate the resultant horizontal force acting on the van.

(1)

resultant force = ... N

(ii) State the equation linking resultant force, mass and acceleration.

(1)

(iii) The mass of the van is 2500 kg.

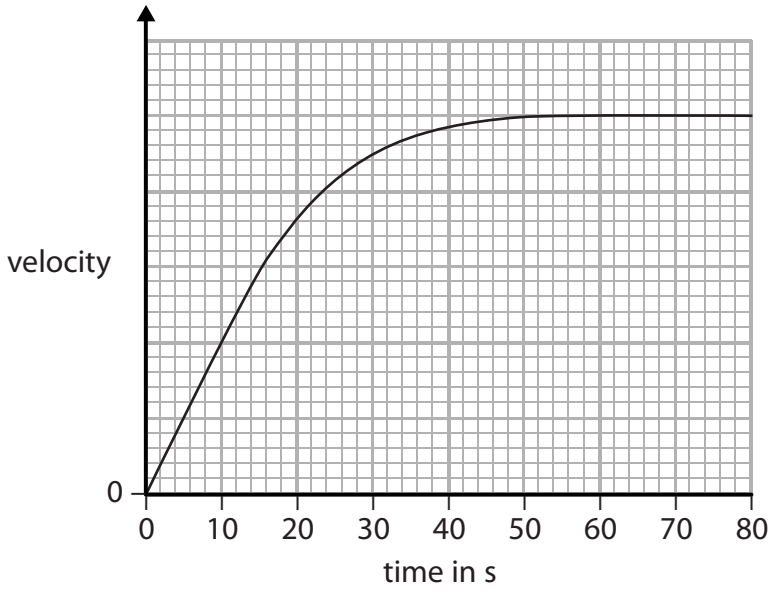
Calculate the acceleration of the van.

Give the unit.

(3)

acceleration = ... unit .....

(c) The graph shows how the velocity of a van changes with time.



Explain the shape of the graph.

Use ideas about forces in your answer.

(5)

(Total for Question 6 = 11 marks)