**2 (a) (i)** Define *power*.

..... [1]

**(ii)** Use your definition in **(i)** to show that power may also be expressed as the product of force and velocity.

[2]

**(b)** A lorry moves up a road that is inclined at 9.0° to the horizontal, as shown in Fig. 2.1.

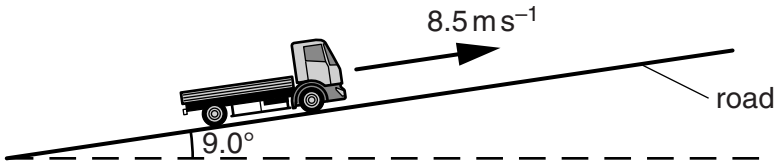


**Fig. 2.1**

The lorry has mass 2500 kg and is travelling at a constant speed of 8.5 m s$^{-1}$. The force due to air resistance is negligible.

**(i)** Calculate the useful power from the engine to move the lorry up the road.

power = ..... kW [3]

**(ii)** State two reasons why the rate of change of potential energy of the lorry is equal to the power calculated in **(i)**.

1. .....

.....

2. .....

.....

[2]