

17 A train on a mountain railway is carrying 200 people of average mass 70 kg up a slope at an angle of  $30^\circ$  to the horizontal and at a speed of  $6.0 \text{ ms}^{-1}$ . The train itself has a mass of 80 000 kg. The percentage of the power from the engine which is used to raise the passengers and the train is 40%.

What is the power of the engine?

A 1.1 MW

B 2.8 MW

C 6.9 MW

D 14 MW

18 A gas is enclosed inside a cylinder which is fitted with a frictionless piston.