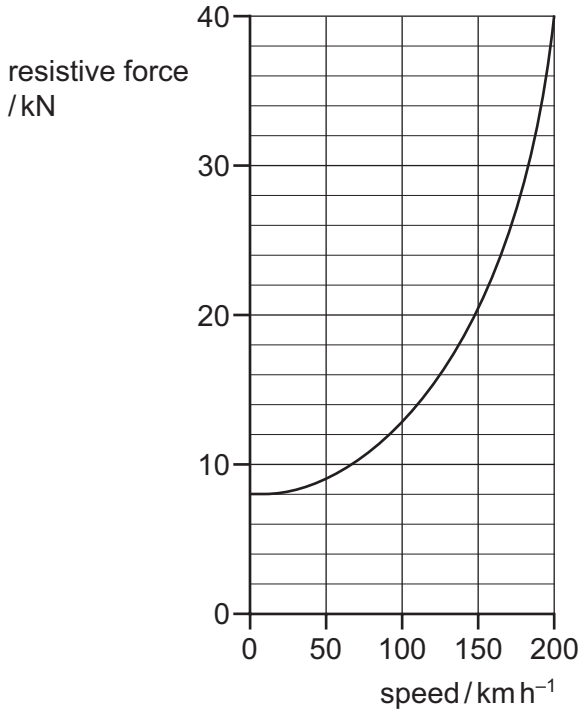
16 The graph shows how the total resistive force acting on a train varies with its speed.

Part of this force is due to wheel friction, which is constant. The rest is due to wind resistance.



What is the ratio $\frac{\text{wind resistance}}{\text{wheel friction}}$ at a speed of 200 km h^{-1}?

A 4 **B** 5 **C** 8 **D** 10

17 The pump of a water pumping system uses 2.0 kW of electrical power when raising water. The pumping system lifts 16 kg of water per second through a vertical height of 7.0 m.

What is the efficiency of the pumping system?

A 1.8% **B** 5.6% **C** 22% **D** 55%

18 A body travelling with a speed of 20 m s^{-1} has kinetic energy E_k.

If the speed of the body is increased to 80 m s^{-1}, what is its new kinetic energy?

A $4E_k$ **B** $8E_k$ **C** $12E_k$ **D** $16E_k$

Space for working