

**17** A car travelling along a motorway experiences two resistive forces: rolling resistance and air resistance.

At a speed of  $15\text{ m s}^{-1}$  the power delivered by the engine is  $10.5\text{ kW}$ . The rolling resistance is  $200\text{ N}$  and remains constant at all speeds. The air resistance is proportional to  $(\text{car speed})^2$ .

How much power must the engine deliver to propel the car at  $30\text{ m s}^{-1}$ ?

- A**  $33\text{ kW}$
- B**  $36\text{ kW}$
- C**  $66\text{ kW}$
- D**  $84\text{ kW}$

**18** In order for two continuous progressive waves to have a constant phase difference, which