

- 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