

## Questions about Motion

1. a) A car is moving at  $120\text{kmh}^{-1}$ . Convert this speed into  $\text{ms}^{-1}$ .  
b) Sound waves move at about  $340\text{ms}^{-1}$ . Convert this speed into  $\text{kmh}^{-1}$ .
2. During a storm, a person *first* sees the lightning *then* hears the thunder. If the time between seeing the lightning and hearing the thunder was 8.5 seconds, how far away from the person did the lightning strike?
3. Two people, **A** and **B**, go from one village to another village 20km away. **A** goes by car at an average speed of  $50\text{kmh}^{-1}$ . **B** goes by bicycle at an average speed of  $18\text{kmh}^{-1}$ . If **A** and **B** leave the first village *at the same time* and **A** arrives at 12<sup>h</sup>00 (noon), what time will **B** arrive?
4. A car has wheels of diameter 60cm. If the wheels rotate 3 times per second, how fast is the car moving? (Answer in  $\text{kmh}^{-1}$ .)
5. a) Find approximate stopping distances for a car, on a dry road, moving at
  - i)  $50\text{kmh}^{-1}$
  - ii)  $100\text{kmh}^{-1}$b) A person whose reaction time is 0.3 seconds is driving at  $100\text{kmh}^{-1}$  (on a dry road). A child runs into the road 120m in front of the car. Will the child be injured?