Solutions

Each answer shows the steps, then the **result**.

2.1

- sound needs a medium (particles) to travel through, and a vacuum has none

2.2

- about 20 Hz to 20 000 Hz

3.1 B

- sound is a longitudinal wave that needs a medium

3.2

(a) distance there and back = 2×660 m = 1320 m

- $v = s/t$

$$v = \frac{1320 \text{ m}}{4.0 \text{ s}} = \mathbf{330} \text{ m/s}$$

(b) faster in water

3.3

- light travels much faster than sound
- so the light from the lightning reaches you almost at once, while the sound takes longer to arrive