

**24** A motor boat vibrates in the water so that it produces water waves of frequency 0.20 Hz. The speed of these waves in the water is  $20\text{ m s}^{-1}$ . The motor boat moves with a speed of  $5.0\text{ m s}^{-1}$  directly towards a stationary sailing boat.

The Doppler effect equation for sound waves also applies to water waves.

What is the frequency with which the waves hit the stationary sailing boat?

**A** 0.15 Hz

**B** 0.16 Hz

**C** 0.25 Hz

**D** 0.27 Hz

**25** If sound has a frequency of 1500 Hz, what is its wavelength in air at 20 °C?