

- 12** Cooling water enters the heat exchanger in the turbine hall of a nuclear power station at  $6.0\text{ }^{\circ}\text{C}$  and leaves at  $14.0\text{ }^{\circ}\text{C}$ . The rate of heat removal by the water is  $6.7 \times 10^9\text{ J}$  per minute.

The specific heat capacity of water is  $4200\text{ J kg}^{-1}\text{K}^{-1}$ .

What is the rate of water flow?

**A**  $\frac{6.7 \times 10^9 \times 60}{4200 \times 8}\text{ kg s}^{-1}$

**B**  $\frac{6.7 \times 10^9}{4200 \times 8 \times 60}\text{ kg s}^{-1}$

**C**  $\frac{4200 \times 8}{6.7 \times 10^9 \times 60}\text{ kg s}^{-1}$

**D**  $\frac{4200 \times 8 \times 60}{6.7 \times 10^9}\text{ kg s}^{-1}$