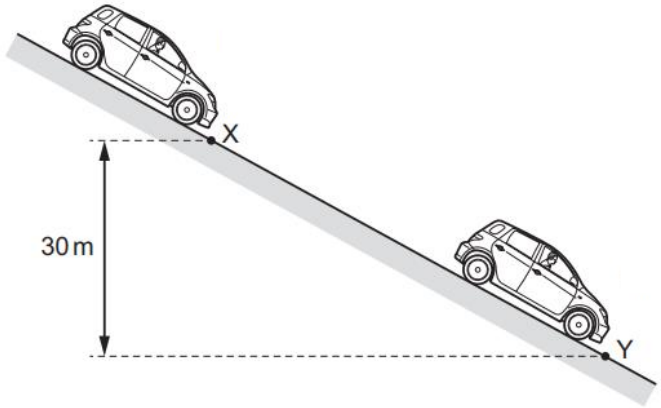
**9** A car of mass 500 kg is at rest at point X on a slope, as shown.




The car's brakes are released, and the car rolls down the slope with its engine switched off. At point Y the car has moved through a vertical height of 30 m and has a speed of 11 m $s^{-1}$.

What is the energy dissipated by frictional forces when the car moves from X to Y?

**A** $3.0 \times 10^4$ J **B** $1.2 \times 10^5$ J **C** $1.5 \times 10^5$ J **D** $1.8 \times 10^5$ J