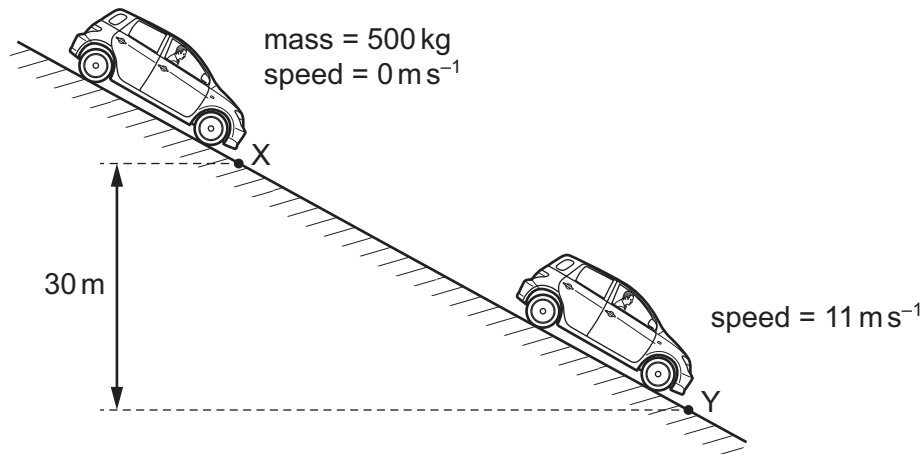


19 A car of mass 500 kg is at rest at point X on a slope, as shown.

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

20 An elastic material with Young modulus E is subjected to a tensile stress S . Hooke's law is