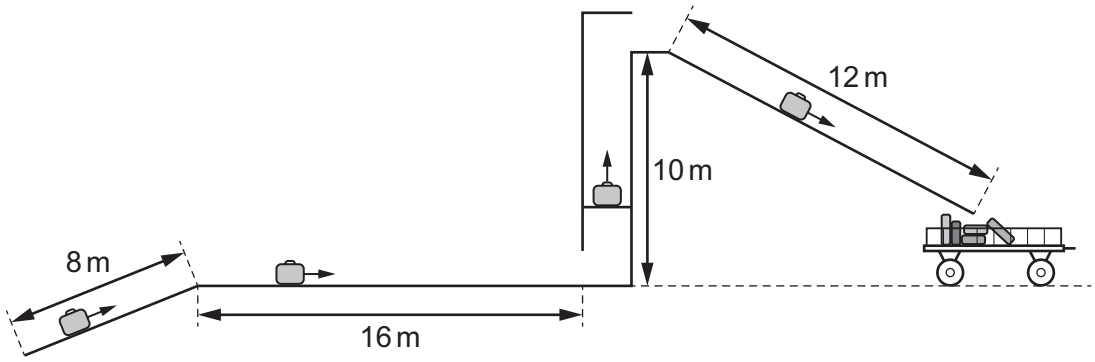
15 An airport has a mechanical system for moving luggage. The system uses a horizontal conveyor belt, a sloping conveyor belt, a lift and a frictionless slide. A suitcase is moved around the airport using this system.



Resistive forces opposing the motion of the suitcase are negligible.

For which movement of the suitcase is the net work done on the suitcase greatest?

A moving the suitcase a distance of 8 m at a constant speed up the sloping conveyor belt

B moving the suitcase a distance of 16 m at a constant speed along the horizontal conveyor belt

C moving the suitcase a distance of 10 m at a constant speed vertically upwards on the lift

D moving the suitcase a distance of 12 m at increasing speed downwards on the slide

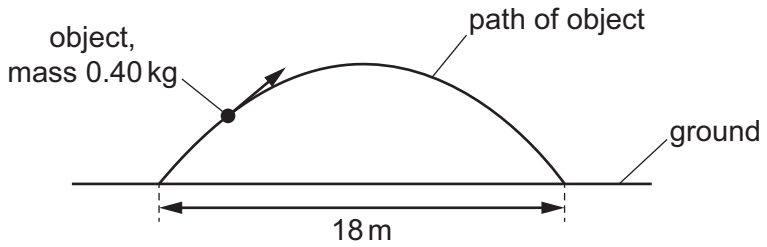
16 A car moves along a horizontal road with a constant velocity v against a resistive force F.

The engine of the car has an efficiency of 25%.

What is the input power to the engine?

A $\frac{Fv}{4.0}$ **B** $\frac{4.0}{Fv}$ **C** $4.0Fv$ **D** $\frac{4.0F}{v}$

17 An object of mass 0.40 kg is projected into the air and follows a curved path above horizontal ground.



The object takes a time of 1.5 s to move along its path. The object lands a horizontal distance of 18 m from its initial position. Air resistance is negligible.

What is the kinetic energy of the object at its maximum height?

A 0 J **B** 2.4 J **C** 11 J **D** 29 J