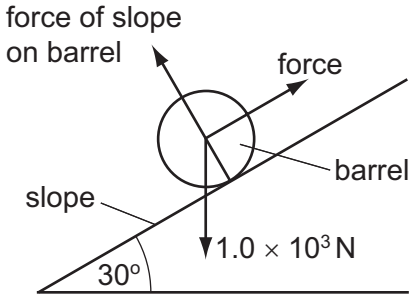
17 The diagram shows a barrel of weight 1.0×10^3 N on a frictionless slope inclined at 30° to the horizontal.



A force is applied to the barrel to move it up the slope at constant speed. The force is parallel to the slope.

What is the work done in moving the barrel a distance of 5.0 m up the slope?

A 2.5×10^3 J **B** 4.3×10^3 J **C** 5.0×10^3 J **D** 1.0×10^4 J

18 A car travelling on a level road at a steady 20 m s^{-1} against a constant resistive force develops a power of 40 kW.

What is the magnitude of the resistive force?

A 200 N **B** 800 N **C** 2000 N **D** 4000 N

19 A turbine at a hydroelectric power station is situated 30 m below the level of the surface of a large lake. The water passes through the turbine at a rate of 340 m^3 per minute.

The overall efficiency of the turbine and generator system is 90%.

What is the output power of the power station? (The density of water is 1000 kg m^{-3}.)

A 0.15 MW **B** 1.5 MW **C** 1.7 MW **D** 90 MW

Space for working