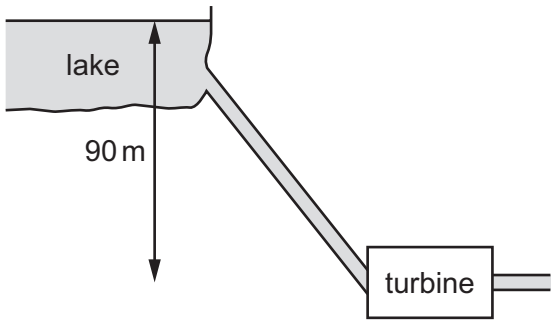
19 Water flows from a lake into a turbine that is a vertical distance of 90 m below the lake, as shown.



The mass flow rate of the water is 2400 kg min^{-1}. The turbine has an efficiency of 75%.

What is the output power of the turbine?

A 26 kW **B** 35 kW **C** 1.6 MW **D** 2.1 MW

20 A wire of diameter d and length l hangs vertically from a fixed point. The wire is extended by hanging a mass M on its end. The Young modulus of the wire is E. The acceleration of free fall is g.

Which equation is used to determine the extension x of the wire?

A $x = \frac{Ml}{\pi d^2 E}$ **B** $x = \frac{Mgl}{\pi d^2 E}$ **C** $x = \frac{4Mgl}{\pi dE}$ **D** $x = \frac{4Mgl}{\pi d^2 E}$