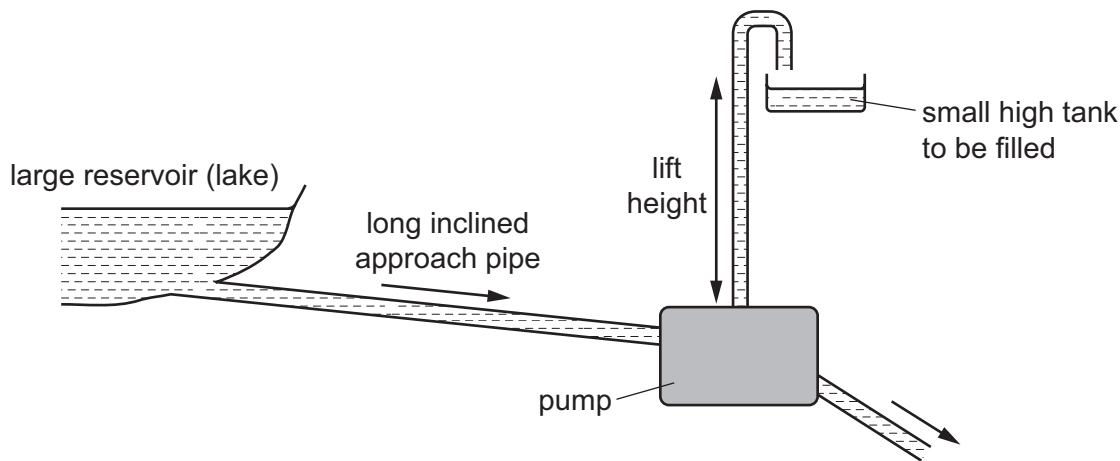


18 The diagram shows a pump called a hydraulic ram.



In one such pump the long approach pipe holds 500 kg of water. A valve shuts when the speed of this water reaches 2.0 m s^{-1} and the kinetic energy of this water is used to lift a small quantity of water by a height of 15 m.

The efficiency of the pump is 10%.

Which mass of water could be lifted 15 m?

A 0.15 kg

B 0.68 kg

C 1.5 kg

D 6.8 kg

19 A conveyor belt is driven at velocity v by a motor. Sand drops vertically on to the belt at a rate of