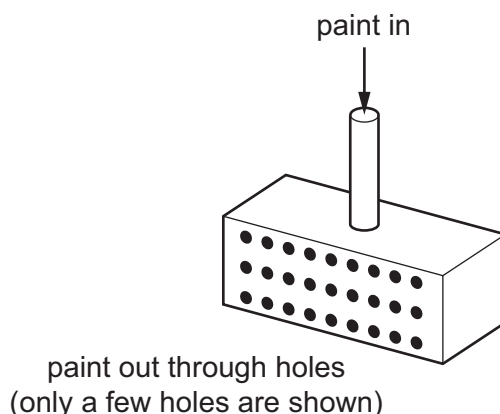


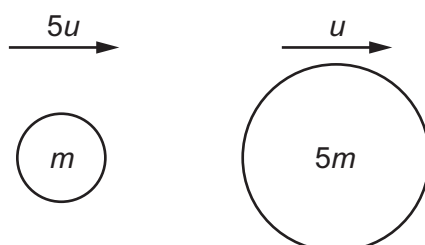
- 8 A device for spraying paint consists of a box with its axes horizontal and vertical. One of its vertical faces contains small holes. Paint is fed into the box under pressure via a vertical tube and exits through the holes as fine streams moving horizontally.



The paint is ejected at a speed of 2.5 m s^{-1} through 400 holes, each of area 0.4 mm^2 . The density of the paint is 900 kg m^{-3} .

What is the horizontal force required to hold the device stationary as it ejects the paint?

- A** 0.36 N **B** 0.90 N **C** 2.3 N **D** 900 N
- 9 A party balloon is filled with air and held stationary at a height of several metres above the ground. The balloon is then dropped in still air.
- Which statement describes the motion of the balloon from the moment of release until just before it hits the floor?
- A** The balloon decelerates continuously.
B The balloon falls at a constant speed and then decelerates.
C The balloon falls at a constant speed.
D The balloon initially accelerates and then reaches a constant speed.
- 10 An object of mass m travelling with speed $5u$ collides with, and sticks to, an object of mass $5m$ travelling in the same direction with speed u .



What is the speed with which the two objects travel together in the original direction?

- A** $\frac{3}{10}u$ **B** u **C** $\frac{6}{5}u$ **D** $\frac{10}{6}u$