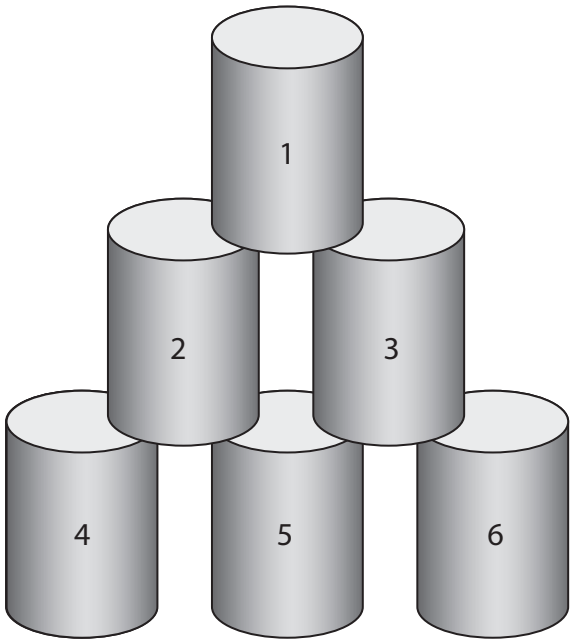
9 A student is playing a game with some empty tins.



(a) He throws a wet cloth of mass 0.15 kg at the tins.

The wet cloth moves at a velocity of 6.0 m/s.

(i) State the equation linking momentum, mass and velocity.

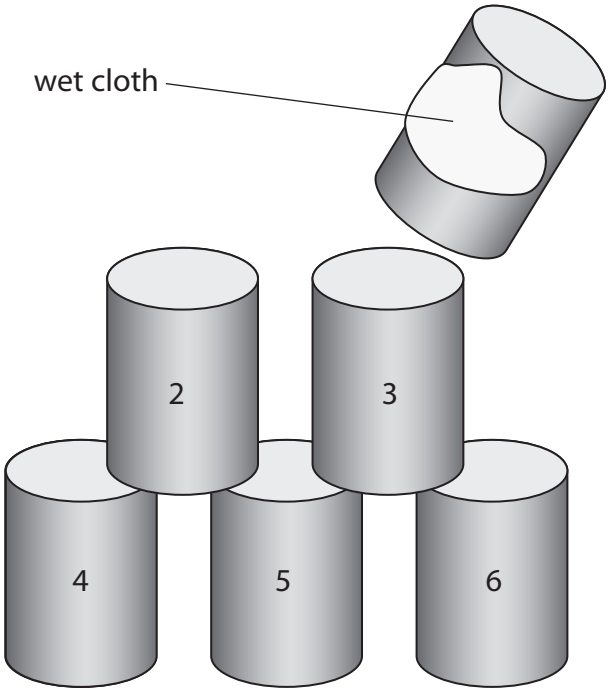
(1)

(ii) Calculate the momentum of the wet cloth and give the unit.

(3)

Momentum = ... unit.....

(iii)The wet cloth sticks to tin 1.



The mass of tin 1 is 0.050 kg.

The cloth and tin 1 move away together.

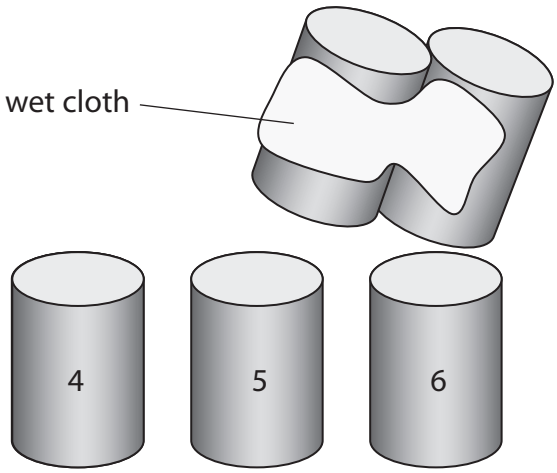
Calculate their velocity.

(2)

Velocity = ... m/s

(b) The student throws a bigger wet cloth at the remaining tins.

This wet cloth sticks to tins 2 and 3 and they move away together.



The student concludes

I threw the cloth the same way, so the velocity of tins 2 and 3 is the same as the velocity of tin 1.

Do you agree with this conclusion?

Explain why.

(2)

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(Total for Question 9 = 8 marks)

TOTAL FOR PAPER = 60 MARKS