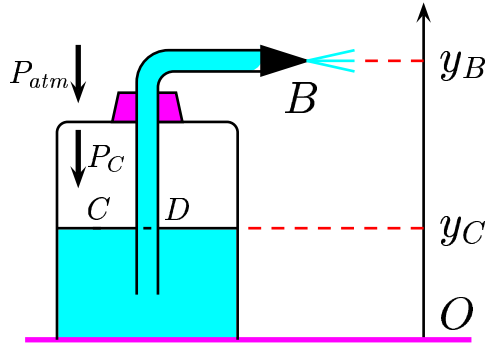


Consider the fire extinguisher where water is forced out of a pin-hole nozzle by air pressure, see the figure.

Denote:

1. The pressure of the air in the bottle by P_c ,
2. The water density, ρ ,
3. The height of the nozzle from the water surface by h ,
4. A_B the cross section of the pin-hole, A_D is the cross section of the tube; i.e., $A_D \gg A_B$,
5. v_D the speed within the tube at the water surface, and v_B the speed at the nozzle.



Find the relationship between v_D and v_B . Choose one

- A) $v_D = v_B$.
- B) $v_D < v_B$.
- C) $v_D > v_B$.

Continuity implies that

$$A_B \ll A_D = \frac{v_B A_B}{v_D} .$$

This leads to $v_D \ll v_B$.

Answer **C**

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