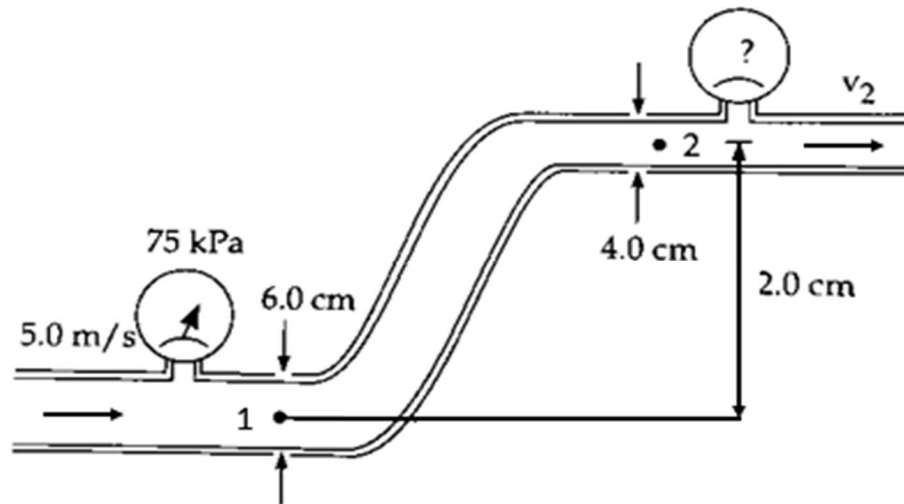


29. a. Explain the necessary theory to explain the water flow in the given tube below.

2



b. Water flows through the pipes shown in figure. The water's speed through the lower pipe is  $5 \text{ ms}^{-1}$  and a pressure gauge reads  $75 \text{ kPa}$ . What is the reading of the pressure gauge on the upper pipe? 3

[Ans:  $4.6 \text{ kPa}$ ]

c. A helicopter of mass  $2 \times 10^4 \text{ kg}$  has total wing area  $400 \text{ m}^2$  and flying horizontally with average speed of  $250 \text{ ms}^{-1}$ .

- Find the pressure difference between the lower and upper surfaces of the wings and (b)
- Find the velocity difference between the upper and lower surfaces of the wings.

[Given, density of air =  $1.3 \text{ kgm}^{-3}$  and  $g = 10 \text{ ms}^{-2}$ ]

[Ans:  $500 \text{ Nm}$ ,  $1.54 \text{ m/s}$ ]

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# Simplified Note