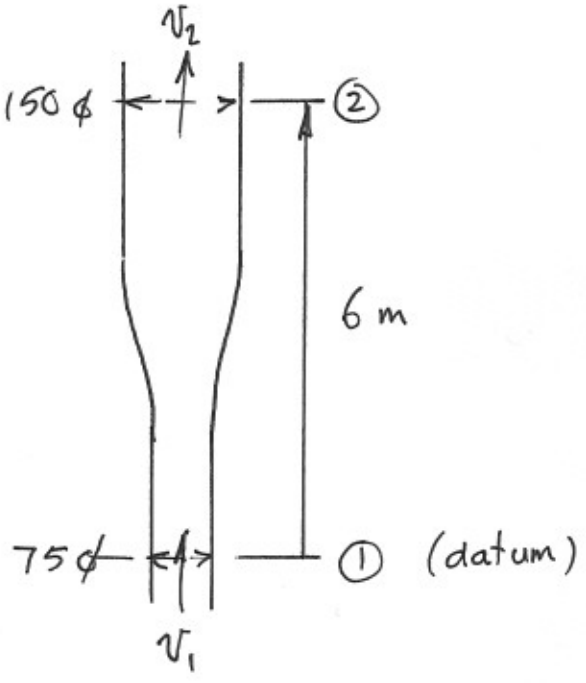

$p_2 - p_1 = 1.15$ bar $= 1.15 \times 10^5$ Pa

$$\dot{\forall} = \frac{\pi}{4} d_1^2 v_1 = \frac{\pi}{4} d_2^2 v_2$$

$$\therefore v_1 = \left(\frac{d_2}{d_1}\right)^2 v_2$$

$$v_1 = \left(\frac{150}{75}\right)^2 v_2$$

$$v_1 = 4 v_2$$

$$\therefore v_1^2 = 16 v_2^2$$

Assuming no losses :-

$$\frac{p_1}{\rho g} + \frac{v_1^2}{2g} + z_1 = \frac{p_2}{\rho g} + \frac{v_2^2}{2g} + z_2$$

$$\frac{v_1^2 - v_2^2}{2g} = \frac{p_2 - p_1}{\rho g} + (z_2 - z_1)$$

$$\frac{16 v_2^2 - v_2^2}{2g} = \frac{1.15 \times 10^5}{1000 \times 9.81} + 6 - \phi$$

$$\frac{15 v_2^2}{2 \times 9.81} = \frac{1.15 \times 10^5}{1000 \times 9.81} + 6$$

$$v_2 = \sqrt{\left(\frac{1.15 \times 10^5}{1000 \times 9.81} + 6\right) \frac{2 \times 9.81}{15}}$$

$$= 4.815 \text{ m/s.}$$

$$\therefore \dot{\forall} = v_2 \frac{\pi}{4} d_2^2$$

$$= 4.815 \times \frac{\pi}{4} (.15)^2 = \underline{\underline{0.085}} \text{ m}^3/\text{s}$$