[illegible]

[illegible]

[illegible]

1) $V_1 = 3ms^{-1}$ [illegible] $V_2 = 2ms^{-1}$ [illegible]

$h_L = \frac{(0.35(V_1 - V_2)^2}{2g}$ [illegible] $= 2.0m$

[illegible]

$\frac{P_1}{w} + \frac{V_1^2}{2g} + z_1 = \frac{P_2}{w} + \frac{V_2^2}{2g} + z_2 + h_L$

$\frac{P_2}{w} = \frac{P_1}{w} + \frac{1}{2g}(V_1^2 - V_2^2) + (z_1 - z_2) h_L$

$= 2.5 + \frac{3^2 - 2^2}{2 \times 9.81} + \frac{(0.35 (3 - 2))^2}{2 \times 9.81}$

$P_2 = 5.$ [illegible]

P [illegible]

4) [illegible] $= 20m$

[illegible] $= 10m$ $\quad P_1 = 11.68$ [illegible]

$C_d = 0.98$ [illegible]

$A_1 = \frac{\pi d^2}{4} = \frac{(\frac{20}{100})^2 \times 3.14}{4}$

$= 0.0314m$

$A_2 = \frac{\pi d^2}{4} = \frac{(\frac{10}{100})^2 \times 3.14}{4}$ [illegible]

[illegible]

$P_1 = 11.68$ [illegible]

[illegible]

$P/w = \frac{1.1453 \times 10^{-5}}{9.81}$ [illegible]

[illegible]

$h = $ [illegible]

$Q = C_d \times \frac{A_1 A_2}{\sqrt{A_1^2 - A_2^2}} \times \sqrt{2gh}$

$Q = 0.01$ [illegible]

[illegible]

[illegible]

[illegible]

$A_1 = \frac{\pi d^2}{4} = \frac{(\frac{30}{100})^2 \times 3.14}{4}$

[illegible]

$A_2 = \frac{\pi d^2}{4} = \frac{(\frac{20}{100})^2 \times 3.14}{4} =$ [illegible]

[illegible]

[illegible]

$Q = C_d \frac{A_1 A_2}{\sqrt{A_1^2 - A_2^2}} \times \sqrt{2gh}$

$Q = 2.33 \times 10^{-3}$ [illegible]

[illegible]

[illegible]

[illegible] $V = \sqrt{2g \Delta h}$

$V = \sqrt{2 \times 9.81 \times}$ [illegible]

$V = 6.$ [illegible]

5.) [illegible]

[illegible]

[illegible]

[illegible]

b) [illegible]

[illegible]

[illegible]

c) [illegible]

[illegible] Speed of [illegible]

$\omega = 17.$ [illegible]

[illegible]

[illegible]