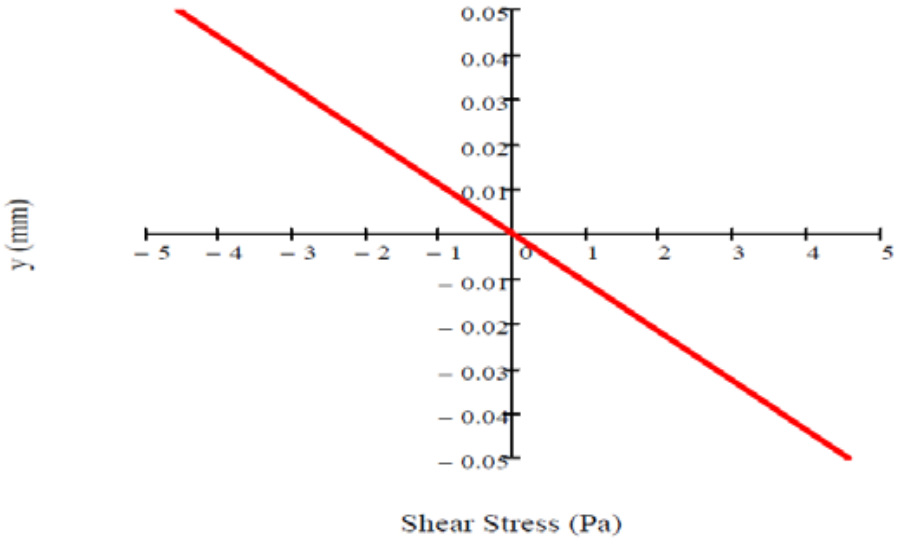
ME-231A

Practice Problem Set-1 Answers

P1. Dimension of B= $[L^{-1}]$

P2. Shear stress on upper plate, τ_{yx}=-4.56 N/m^2 and shear stress varies linearly with y.



P3. Gauge pressure =4.41 kPa

P4. Pressure difference P_A-P_B=8900Pa

P5. Total pressure drop=171lbf/ft^2 and pressure drop due to friction=392lbf/ft^2.

P6. Δh=0.193m

P7. Force, F=38750N and centre of pressure at X=0.615m.

P8. Depth h=2.52m.

P9. h=0.152m

P10. F_H=97.9MN, F_V=153.8MN, CP is 10.74m to the right and 3.13m up from point A.

P11. F_A=111KN

P12. F_H=370KN, F_V=416KN, resultant F=557KN and α=48.3^o

P13. Volume V=2.52L, n=6 weights

P14. (a) M_B=29.1Kg (b) Submerged length =0.323m and Force F=6.1N

P15. F=159.4 N

P16. Position is slightly unstable and MG=-0.007m