

Solving a Problem

* if D & Q are given and P has to be found:

Solution is direct

* if P_2 & D are given

trial and error procedure is needed to find Q

1- assume Re^{old} , say $Re = 100,000$

2- evaluate f_f from shacham equation

$$f_f = \cancel{0.00488} (\#) \text{ at } Re = 100,000$$

3- M.E.B

find U_m (watch the unit)

4- Re evaluate $Re \Rightarrow Re^{New} = ()$

$$5- \text{Diff} = \frac{|Re^N - Re^{old}|}{Re^N} * 100$$

6- If $\text{Diff} < 1\%$ Stop and go to 7, else go to 2

$$7- U_m = \frac{\mu Re^N}{\rho D}, \quad Q = \frac{\pi}{4} D^2 U_m$$