Fluid Mechanics Program

Engineering 1282.02H

Spring, 2015

Spandan Shah, Seat 12

S. Heglas Wednesday 3:00

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```
% Inputs
Q=0;
P=0;
W=0;
H=0;
L=0;
u=0;
p=0;

% Choose
fprintf('\nChoose the variable you want to find.');
fprintf('\n\nTo calculate:');
fprintf('\n\tVolumeteric flow rate - Press 1');
fprintf('\n\tWidth - Press 2');
fprintf('\n\tHeight - Press 3');
fprintf('\n\tLength - Press 4');
fprintf('\n\tDelta P - Press 5');
fprintf('\n\tViscosity - Press 6\n\n');

choice = input('Enter your choice: ');


% For Q
Q = (W*(H^3)*P)/(12*u*L);

% For W
W = (12*Q*u*L)/((H^3)*P);

% For H
H = ((12*Q*u*L)/(W*P))^(1/3);

% For L
L = (W*(H^3)*P)/(12*u*Q);

% For P
P = (12*Q*u*L)/((H^3)*W);

% For u
u = (W*(H^3)*P)/(12*Q*L);

% Average velocity
v_avg = ((H^2)*P)/(12*u*L);

% Shear stress at the wall
t_wall = (H*P)/L;

% Hydraulic/effective diameter
D_h = (4*W*H)/(2*W+2*H);

% Reynold's number
Re = (p*v_avg*D_h)/u;

% Entrance length
Le = 0.06*Re*D_h;
```