**ENGR 1204 Programming Languages in Engineering**

**MATLAB Lab 6**

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**Matlab code**

disp('Time to Drain Water Tank')

disp('h vavg time')

times = [];

height = [];

for i=1:10

vals = calc\_time(i);

height(i) = i;

times(i) = vals(2);

fprintf('%d\t%.2f\t%.2f\n', i, vals(1), vals(2))

end

plot(height, times);

grid on;

title('Time curve as function of height');

xlabel('Height (feet)');

ylabel('Time (hours)');

function output = calc\_time(h)

inch\_to\_feet\_constent = 0.083;

rt = 2;

ro = 0.3 \* inch\_to\_feet\_constent;

g = 32.2;

vavg = 0.5 \* sqrt(2 \* g \* h);

time = ((rt / ro)^2) \* (h / vavg);

time = time / 3600;

output = [vavg, time];

end

**Output**

Time to Drain Water Tank

h vavg time

1 4.01 0.45

2 5.67 0.63

3 6.95 0.77

4 8.02 0.89

5 8.97 1.00

6 9.83 1.09

7 10.62 1.18

8 11.35 1.26

9 12.04 1.34

10 12.69 1.41

