ME 1020 Engineering Programming with MATLAB

Problem 4.1:

1. The volume V and surface area A of a sphere of radius r are given by

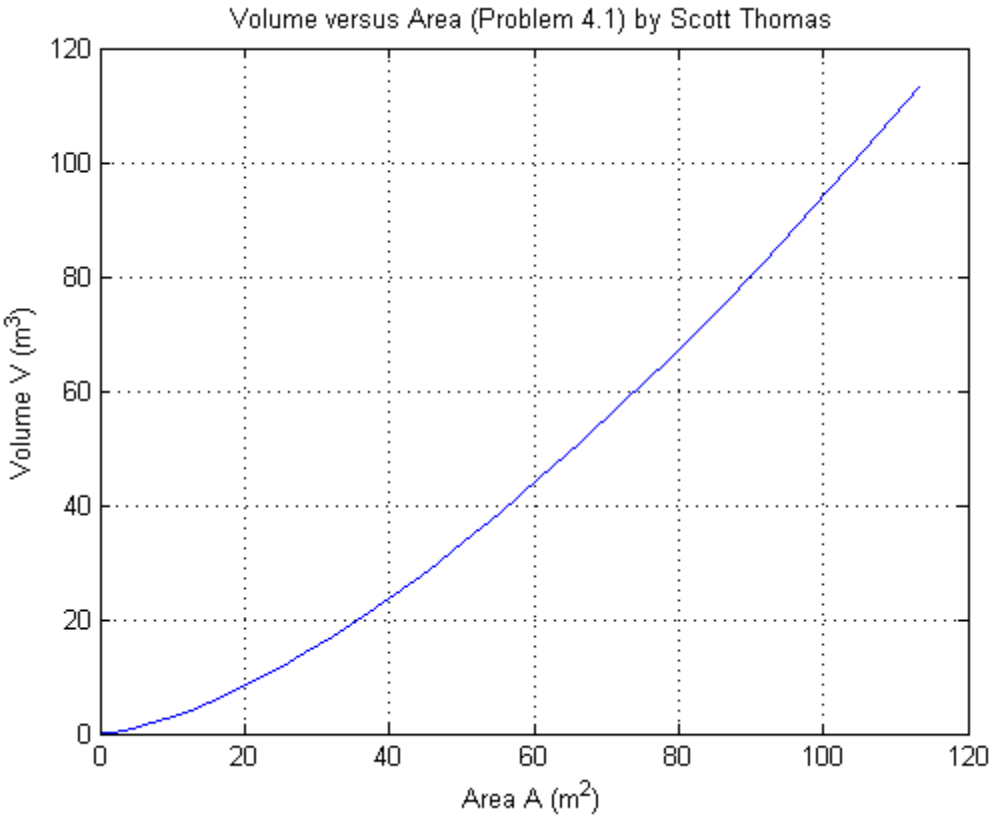
$$V = \frac{4}{3}\pi r^3 \qquad A = 4\pi r^2$$

a. Develop a pseudocode description of a program to compute V and A for $0 \leq r \leq 3$ m and to plot V versus A.

b. Write and run the program described in part *a*.

```
% Problem 4.1
clear
clc
disp('Problem 4.1: Scott Thomas')

% r = radius
r = 0:0.1:3; %m

% V = volume (m^3)
V = 4/3*pi*r.^3;

% A = Area (m^2)
A = 4*pi*r.^2;

plot(A,V),xlabel('Area A (m^2)'), ylabel('Volume V (m^3)'), grid on,...
    title('Volume versus Area (Problem 4.1) by Scott Thomas')
```

```
Problem 4.1: Scott Thomas
```


Volume versus Area (Problem 4.1) by Scott Thomas
Volume V (m3)
Area A (m2)
0
20
40
60
80
100
120