1-

1. Sketch and find the volume of the solid obtained by rotating the region under the graph of about the axis.

x=[-10:0.01:10];

y=3\*x-5;

plot(x,y, 'r', 'linewidth' , 1), hold on, grid on, box on

axis([-5.0 5.0 -10 10])

x\_2=[-10:0.01:10];

y\_2=2\*x\_2.^4 +3;

plot(x\_2,y\_2, 'b', 'linewidth' , 1),grid on, hold on

x\_3=[-10:0.01:10];

y\_3=5\*x\_3.^2 -7;

plot(x\_3,y\_3, 'k', 'linewidth' , 1), grid on, box on

% formaiting a plot

xlabel('x-axis')

ylabel('y-axis')

title('Graph Q1')

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%for 0<= x <= 1

f\_1 = @(x) pi\*(3\*x-5).^2;

volume\_1 = integral(f\_1, 0, 1)

%for 1<= x <= 4

f\_2 = @(x) pi\*(2\*(x.^4)+3).^2;

volume\_2 = integral(f\_2, 1, 4)

%for 4< x <= 5

f\_3 = @(x) pi\*(5\*(x.^2)-7).^2;

volume\_3 = integral(f\_3, 4, 5)

f\_final = volume\_1 + volume\_2 + volume\_3

2-

Graph the curve:

If the curve is rotated about the x-axis, find the area of the resulting surface. (Use your graph to help you find the correct parameter interval).

theta=[0:0.001:2\*pi];

x = 2\*cos(theta) - cos(2.\*theta);

y = 2\*sin(theta) - sin(2.\*theta);

plot(x,theta, 'r')

hold on

plot(y,theta, 'b'), grid on

axis([-3.25 2.75 0 6])

% formaiting a plot

xlabel('x-axis')

ylabel('y-axis')

title('Graph ')

% the area of the resulting surface the curve rotated about the x-axis

% parameter interval