Econ 512 HW 4

Kalyani Padmakumar

October 2018

The codes have been specified in the MATLAB file hw4˙codes.m.Results are as follows:

1 Question 1: Result

Area of the quarter circle is as below:

```
q1 =

    0.7870

>>
```

2 Question 3: Result

Value of Π is as follows:

```
q3 =

    3.1464

>> |
```

3 Question 4: Result

Value of Π is as follows:

```
q4 =

    3.1416

>> |
```

Codes:

4 Question 1: Code

```
rng default;
p=haltonset(2);
x0=net(p,1000);
a = [x0(:,1) x0(:,2)];
d = [];
for i = 1:1000
    b_i = x0(i,1).^2 + x0(i,2).^2;
    if b_i <= 1
        d(1,i) = 1;
    else
        d(1,i) = 0;
    end
end

q1 = sum(d)/1000
```

5 Question 3: Code

```
rng default;
p=haltonset(1);
x0=net(p,1000);
n = size(x0);
y = [];
for i = 1:n
    y(i,1) = (sqrt(1 - x0(i,1).^2)).*4;
end

q3 = sum(y)./1000
```

6 Question 4: Code

```
function r = newt(f,a,b,n)
h = (b - a) / n;
r = f(a)/2;
x = a + h;
for i = 1 : n-1
    r = r + f(x);
    x = x + h;
```

```
end;
r = r + f(b)/2;
r = r * h;
end
```

q4=newt(@(x) (sqrt(1 - x.^2)).*4,0,1,1000);

Please note that I referred to the web for help with certain commands in this document.