Assignment: Homework Six Name: Cody Strange  
Disclaimer: This is my work, not that of others  
Total Score: 40 (in points, not percentage)

Problem 1 score: 10  
Problem 2 score: 20  
Problem 3 score: 20

Problem 3 score: 10

from math import \*

x = 0

for i in range(100):

x = cos(x)

**0.7390851332151607**

1. A.

x = 1

a = 3

for i in range(10):

f = (x\*\*2) - a

fp = (2\*x)

x1 = x - f / fp

x = x1

**2.0**

**1.75**

**1.7321428571428572**

**1.7320508100147276**

**Four iterations, not counting the initial x = 1**

B.

x = 1

a = 3

for i in range(10):

f = (x\*\*3) - a

fp = (3\*x\*\*2)

x1 = x - f / fp

x = x1

print(x)

**1.6666666666666665**

**1.471111111111111**

**1.4428120982493433**

**1.4422497895989996**

**Four iterations, not counting the intial x = 1**

1. **A.**

**A picture containing text

Description automatically generated**

**Interval [-3/2,3/2]**

**Text, letter

Description automatically generated**

**Interval [1/2, 3/2]**

B. When g’(x) = 2/3x then convergence is linear because 2/3(1) = 2/3 != 1

When g’(x) = 2x-2 then convergence is quadratic because 2(1) – 2 = 2

1. **A.**

Chart, line chart

Description automatically generated

**D.**

x = 0.3

s = 0.001

def func(x):

return ((7\*sin(x))\*(e\*\*(-x))) - 1

for i in range(3):

f = func(x)

x1 = x - ((func(x)\*s\*x)/(func(x+s\*x)-func(x)))

x = x1

**Iterations**

**(0.3)**

**(0.14430840463168013+0j)**

**(0.16940880912446213+0j)**

**(0.17017943400507535+0j)**