**Solution:**

**Day 1**

Note: These are not “the” solutions, many problems in coding have many solutions. In particular with the graphing problems there are many ways to draw a smiley face or a star, these are only examples.

**1 Plots**

2. x = [1,2,3,4,5,6,7,8,9,10]

3. x = -100:100

4. All odd numbers from 1 to 99? x = 1:2:99

All numbers divisible by 8 from 0 to 800? x = 0:8:800

A backwards list from 100 to 0? x = 100:-1:0

The list [0, .1, .2, …, 9.8, 9.9, 10]? x = 0:.1:10

5. plot([1,0,1,1],[2,3,-1,2])

6. Ex: plot([1,0,0,1,1],[1,1,0,0,1])

axis([-1, 2, -1, 2])

7. Ex: plot([1,-0.8090,0.3090,0.3090,-0.8090,1],[0,0.5878,-0.9511,0.9511,-0.5878,0])

9. Ex: plot([1,-0.8090,0.3090,0.3090,-0.8090,1],[0,0.5878,-0.9511,0.9511,-0.5878,0],'y')

11. Ex: plot([1,0,0,1,1],[1,1,0,0,1],'y')

axis([-1, 2, -1, 2])

hold on

plot([.4,.2,.2,.4,.4],[.8,.8,.6,.6,.8],'k')

plot([.8,.6,.6,.8,.8],[.8,.8,.6,.6,.8],'k')

plot([.2,.2,.8,.8],[.4,.2,.2,.4],'k')

12. x = -4:.1:4

plot(x,x.^2-2\*x+5)

13. x = -10:1

plot(x,exp(x))

14. x = 0:10

plot(x,cos(x))

hold on

plot(x,sin(x))

**2 Loops:**

1. total = 1

for i = 1 : 100

total = total\*i

end

2. x = [0,2,1,0]

y = [0,0,1,0]

plot(x,y)

hold on

plot(x+2,y)

3. x = [0,2,1,0]

y = [0,0,1,0]

plot(x,y)

hold on

for i=1:19

plot(x+2\*i,y)

end

4. x = [0,2,1,0]

y = [0,0,1,0]

for i=1:10

for j=1:10

plot(x+2\*i,y+j)

hold on

end

end

5. fibSeq = 1

fibSeq(2) = 1

for i = 3:100

fibSeq(i) = fibSeq(i-1)+ fibSeq(i-2)

end

**3 Extra Extra!**

1. (3,5) torus knot:

t = 0:.1:10

x = (cos(5\*t)+2).\*cos(3\*t)

y = (cos(5\*t)+2).\*sin(3\*t)

z = -sin(5\*t)

plot3(x,y,z)

2. Ex [x,y] = meshgrid(-10:.5:10)

z = x.^2 + y.^2

mesh (x,y,z)

**Solution: Day Two**

**1 If statements**

Exercise 1: test = 4

if test<3

disp('It''s no bigger than 3')

else

plot(1:.1:10,sin(1:.1:10))

end

Exercise 2: name = ’Martina’

len = length(name)

if len > 3

nick = name(1:3)

disp(['Yeah, I'm just going to call you ', nick])

else

disp(['Good to meet you, ', name])

nick=name

end

Exercise 3: headsCounter = 0

tailsCounter = 0

for I = 1:10000

coin =rand

if coin>.5

disp('Heads!')

headsCounter = headsCounter+1

else

disp('Tails!')

tailsCounter = tailsCounter+1

end

end

Exercise 4: walk = 0

for I = 1:100

coin =rand

if coin>.5

walk = walk+1;

else

walk = walk -1;

end

end

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