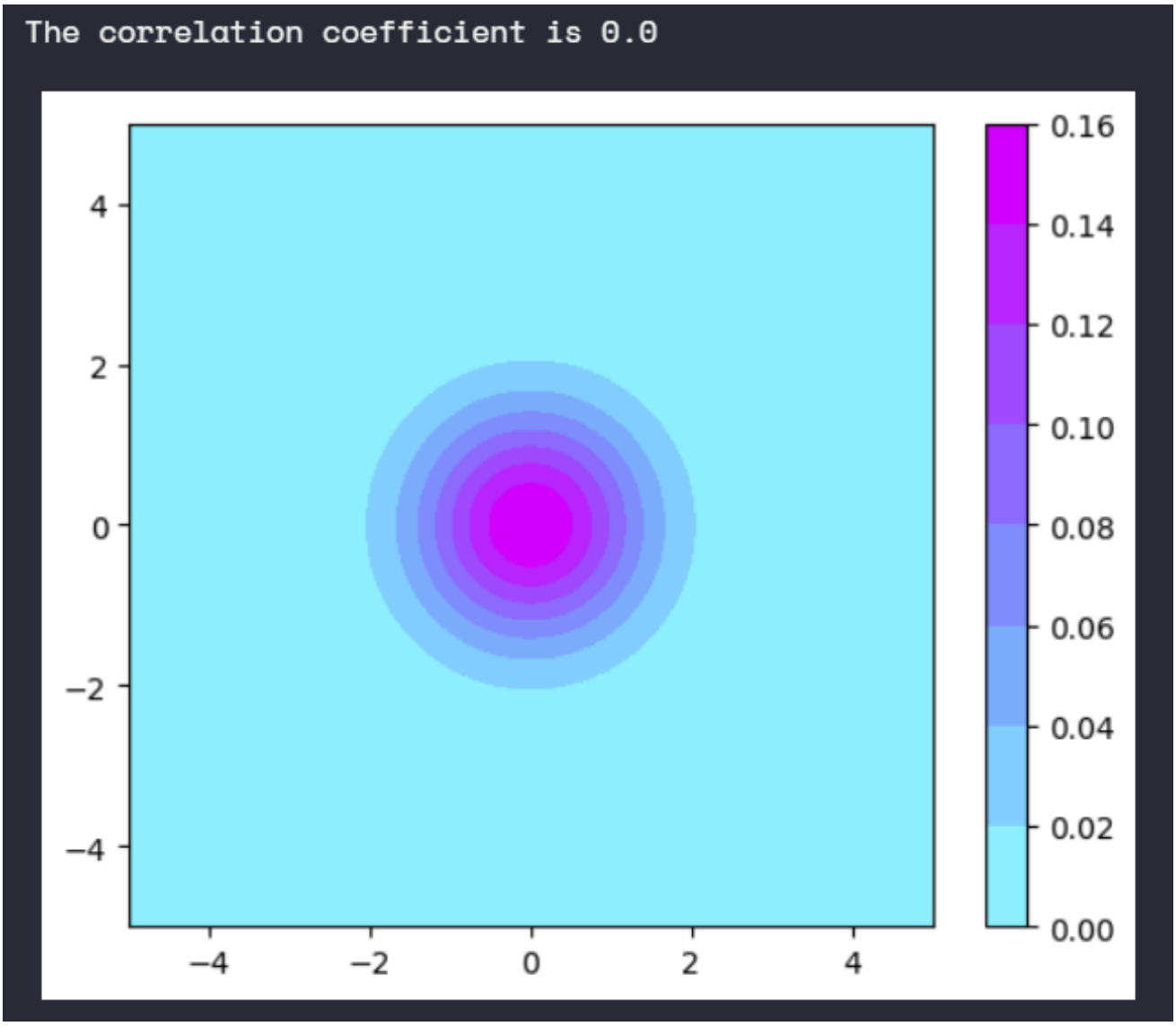
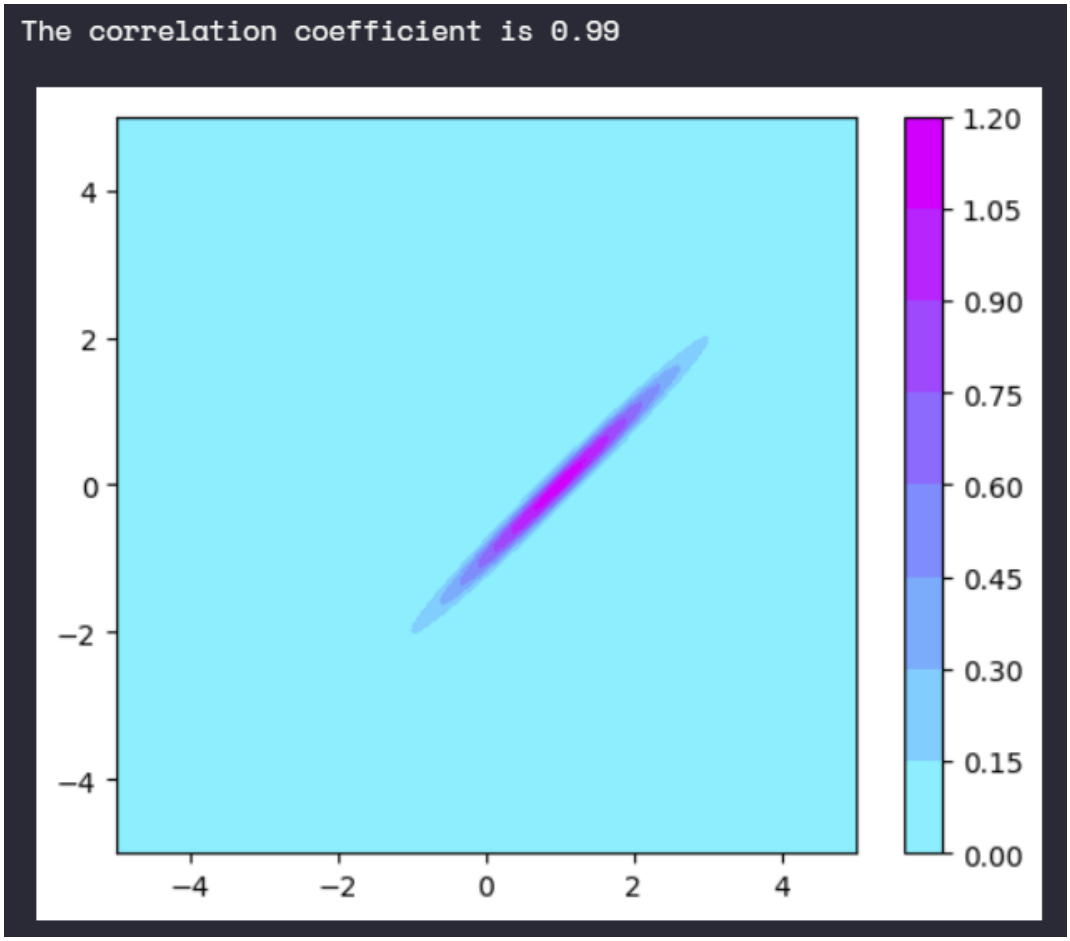
Problem 6.6

```
# helper function for calculating correlation coefficient
def get_cc(cov_mat):
    # 0,1 -> cov[x,y]; 0,0 -> var_x; 1,1 -> var_y
    corr_coeff = float(cov_mat[0][1])/math.sqrt(cov_mat[0][0]*cov_mat[1][1])
    print('The correlation coefficient is ' + str(corr_coeff))
```

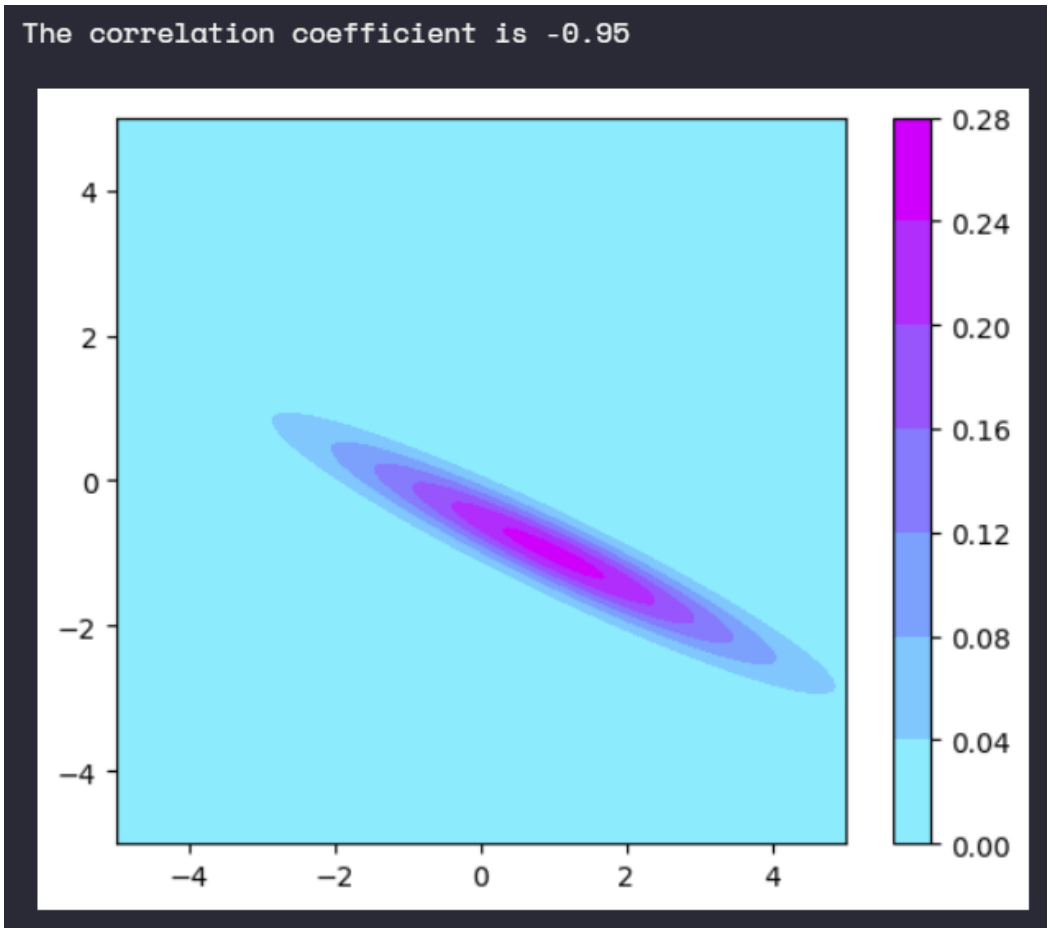
Part a.



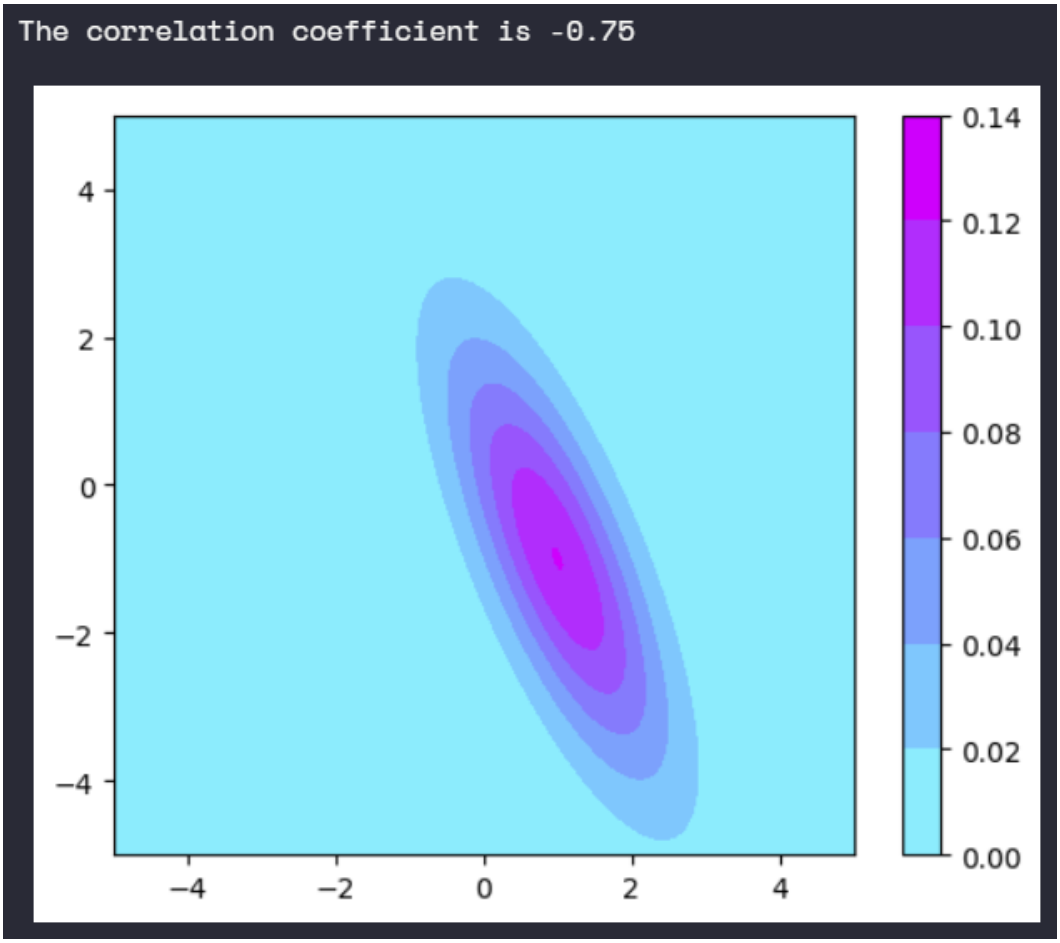
Part b.


The correlation coefficient is 0.99
4
2
0
−2
−4
−4
−2
0
2
4
1.20
1.05
0.90
0.75
0.60
0.45
0.30
0.15
0.00

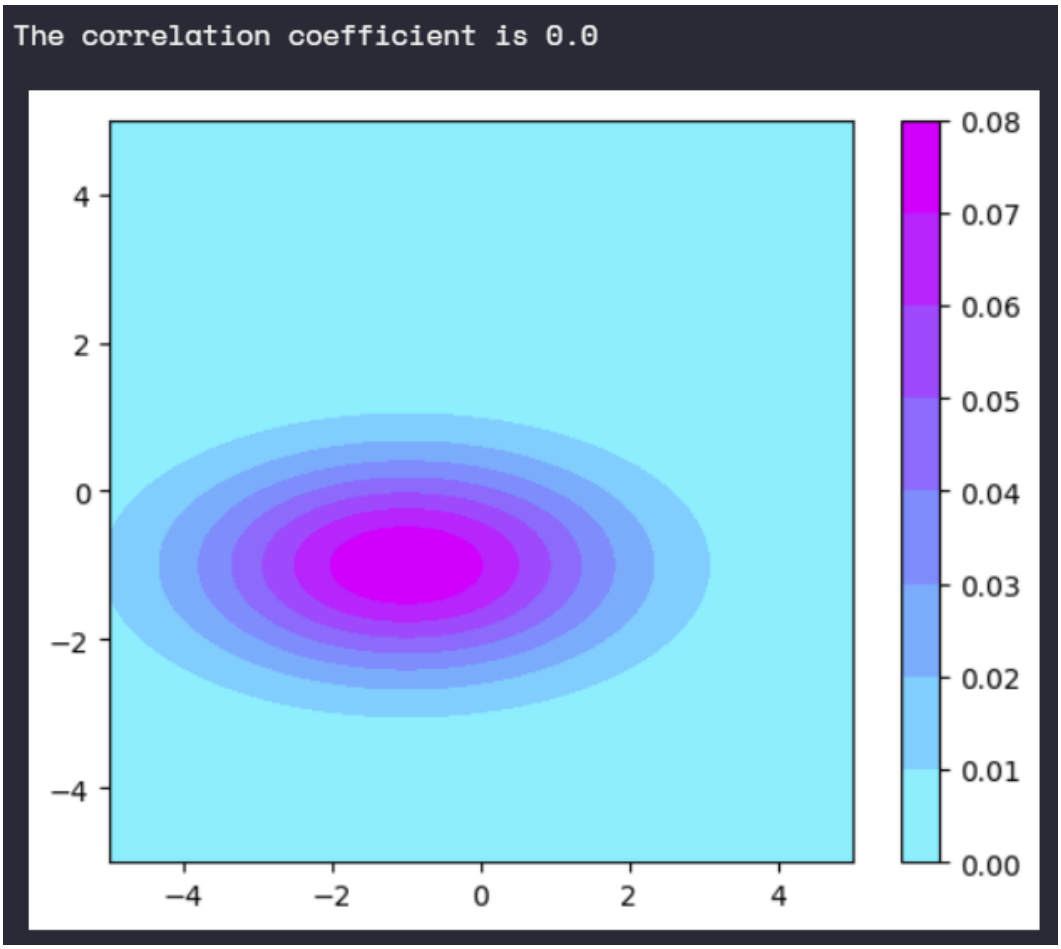
Part c.


The correlation coefficient is -0.95
4
2
0
−2
−4
−4
−2
0
2
4
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00

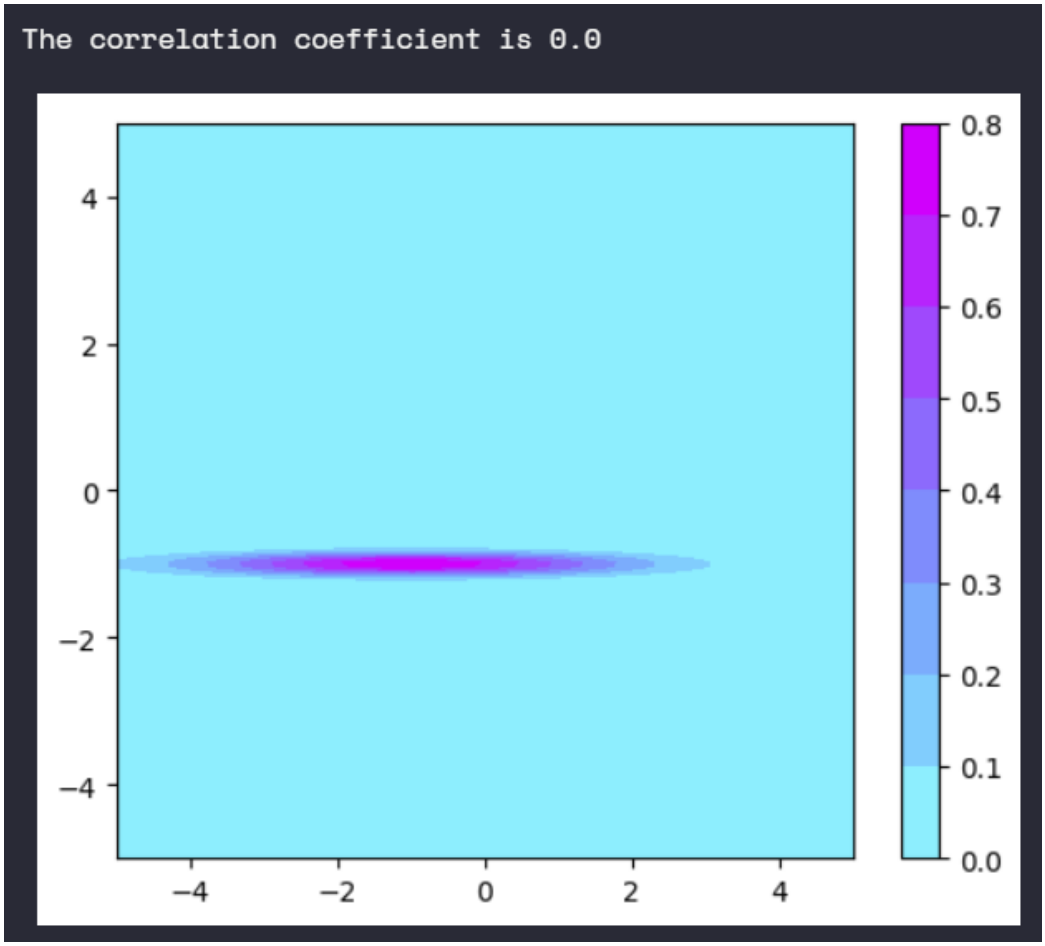
Part d.


The correlation coefficient is -0.75
4
2
0
−2
−4
−4
−2
0
2
4
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00

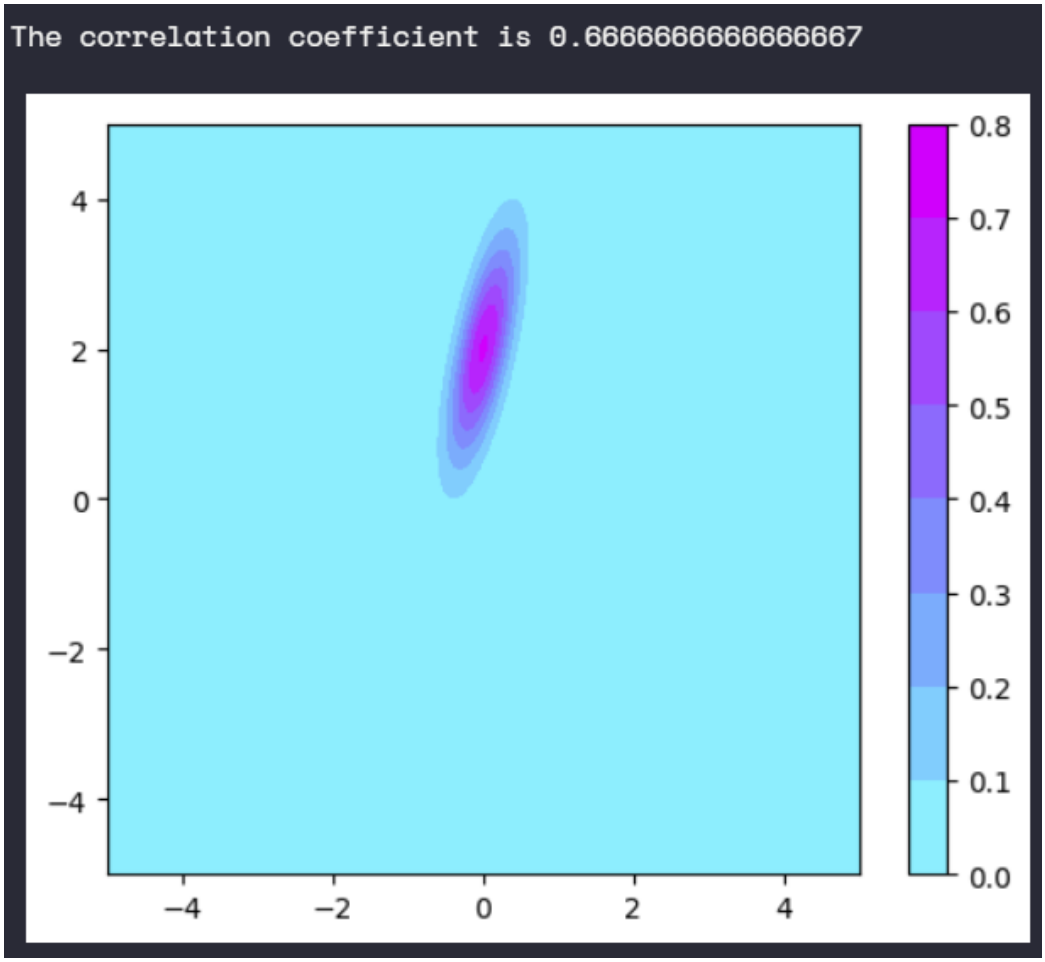
Part e.


The correlation coefficient is 0.0
4
2
0
−2
−4
−4
−2
0
2
4
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00

Part f.


The correlation coefficient is 0.0
4
2
0
−2
−4
−4
−2
0
2
4
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

Part g.


The correlation coefficient is 0.6666666666666667
4
2
0
−2
−4
−4
−2
0
2
4
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0