Fairness in Criminal Justice Worksheet

Defendant	Predicted Risk Probability	Did They Actually Recidivate?
1	0.18	0
2	0.20	0
3	0.35	0
4	0.42	1
5	0.55	0
6	0.59	1
7	0.72	1
8	0.75	0
9	0.85	0
10	0.90	1

The table lists 10 defendants. Suppose we ran each defendant through some system, like COMPAS, that gives the probability they will recidivate (*Predicted Risk Probability*). Suppose also that we are omniscient and know whether they will actually recidivate (*Did They Actually Recidivate?*).

Suppose the system comes with a suggested threshold, 0.6.

(1) Fill in the confusion matrix for the system.

	Predicted N	Predicted Y
Actual N		
Actual Y		

(2) What is the precision of the system?

(3) What is the false positive rate?

(4) What is the false negative rate?

You think you can do better, so you decide to choose another threshold instead of the suggested one.

(1) What threshold do you choose?

(2) Fill in the confusion matrix for the system.

	Predicted N	Predicted Y
Actual N		
Actual Y		

(3) What is the precision?

(4) What is the false positive rate?

(5) What is the false negative rate?