Name:

1.) (1 pt.) **True or False:** Lift at a given decile is dependent on selecting a probability cutoff.

False

2.) (4 pts.) Given the table of actual responses and predicted probabilities below, generate an ROC plot using probability cutoffs of 0, 0.2, 0.4, 0.6, 0.8, and 1. **Show your work to receive credit.**

See spreadsheet.

1 pt. each for middle four points on ROC plot. No points for (0, 0) and (1,1).

3.) (3 pts.) Given the logistic regression equation:

$$\hat{y} = 1.3 + 2.62 * age - 45.6 * gender$$

What is the exact interpretation of the coefficient for gender in terms of odds? Assume only two values for gender were recorded: male and female. Also assume male is the reference level.

$e^{-45.6} \sim 0$

Holding all other variables constant (1 pt.), a person being female changes the odds of the event occurring by a factor of 0 (1 pt.), on average (1 pt.).

4.) (1 pt.) **True or False**: The interpretation of the coefficient for gender calls into question the validity of the model in question 3.

True

5.) (1 pt.) Draw, highlight, or circle the decision boundary for the trained logistic regression model below with only two inputs, x_1 and x_2, assuming a 0.56 probability cutoff.