Quiz 3.3

1.) **(2 pts.)** Given the logistic regression equation:

$$\hat{y} = 1.7 - 0.54 * age + 1.2 * gender$$

What is the exact interpretation of the coefficient for age in terms of odds?

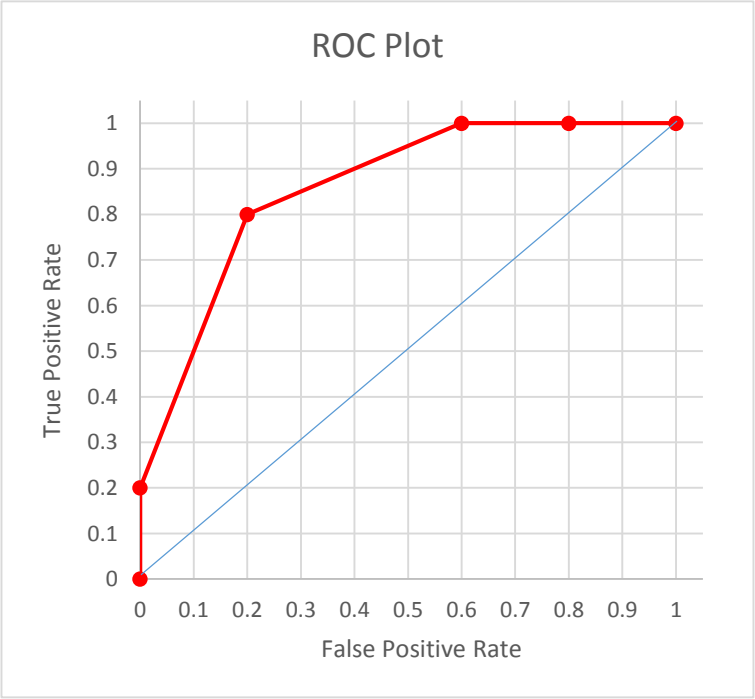
Holding all other variables constant, for a one unit increase in age, the odds of the event occurring decrease by a factor of 0.58 on average.

What is the exact interpretation for the coefficient of gender in terms of odds, assuming gender has only two levels, male and female, and female was the reference level?

Holding all other variables constant, a person being male increases the odds of the event occurring by a factor of 3.3 on average.

2.) **(4 pts.)** Given the table of actual responses and predicted probabilities below, generate an ROC plot using probability thresholds of 0, 0.2, 0.4, 0.6, 0.8, and 1.

Actual	Predicted
1	0.85
1	0.75
1	0.7
1	0.65
0	0.65
1	0.55
0	0.55
0	0.45
0	0.3
0	0.1



Quiz 3.3

3.) **(4 pts.)** Given the table of actual responses and predicted probabilities below, generate a lift plot assuming a probability cutoff of 0.5. Generate lift values for depths of the 20%, 40%, 60%, 80% and 100%.

Actual	Predicted
1	0.85
1	0.75
1	0.7
1	0.65
0	0.65
1	0.55
0	0.55
0	0.45
0	0.3
0	0.1