Homework 4

STAT 5333 (Spring 2021)

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Problem 4.3

(a) Here, ML fit of linear probability model is $\hat{\pi} = 0.7578 - 0.0694x$ which means that after each decade "the percentage of times the starting pitcher pitched a complete game" decreases by a factor of 0.0694.

(b)

```
(0.7578-0.0694*12)
```

```
## [1] -0.075
```

Persentage cannot be negative, hence it is not plausible.

(c) Here, ML fit of logistic regression model is

$$\hat{\pi} = \frac{e^{1.148-0.315x}}{1+e^{1.148-0.315x}}$$

```
x = 12
exp(1.148-0.315*x)/(1+exp(1.148-0.315*x))
```

```
## [1] 0.06710713
```

This is plausible because $\hat{\pi}$ is always between $[0, 1]$.