

## Question 8

0 / 2 pts

You have fit a multiple linear regression model and the  $(X'X)^{-1}$  matrix is:

$$\begin{bmatrix} 0.893758 & -0.0282448 & -0.0175641 \\ -0.0282448 & 0.0013329 & 0.0001547 \\ -0.0175641 & 0.0001547 & 0.0009108 \end{bmatrix}$$

If the error sum of squares is 305 and there are 14 observations, what is the standard error of the regression coefficient  $\hat{\beta}_1$ ?

Solution: I reworked on the solution and the final answer was 0.19224

$B_1 \text{ Var} = 0.0013329 \Rightarrow$  Second diagonal element of matrix.

$SSE = 305$   
 $n = 14 \quad p = 3$

$MSE = 27.72 \Rightarrow 305 / (14 - 3) = \frac{305}{11}$   
 $= \frac{305}{11} = 27.72$

std-error of  $\hat{\beta}_1 = \sqrt{MSE * \text{Var } B_1}$

std. err  $\hat{\beta}_1 = 27.7272 * 0.0013329$

Std. Error  $\hat{\beta}_1 = 0.19224$