$\alpha Showthat \mathrm{F}-statistics for dropping a single coefficient from a model is equal to the square of the corresponding \mathrm{z}-score F = \frac{(RSS_0 - RSS_1}{RSS_1/(N-}$
$\frac{\hat{\beta}_j}{\hat{\sigma}\sqrt{v_j}} where \mathrm{v}_j$ is jth diagonal element of $(\mathbf{X^T X})^{-1}$

$$RSS(\beta) = (\mathbf{y} - \mathbf{X}\beta)^T(\mathbf{y} - \mathbf{X}\beta)$$

$$\beta = (\mathbf{X^T X})^{-1}\mathbf{X}^T\mathbf{y} \tag{1}$$