Lin Mod M1 :: 3D

MD

Is $E\left[\frac{SSE(X_0)}{\hat{\sigma}_F^2}\right] = E\left[SSE(X_0)\right] \cdot E\left[\frac{1}{\hat{\sigma}_F^2}\right]$?

Here, $SSE(X_0)$ and $\frac{1}{\hat{\sigma}_F^2}$ are independent, so expectation distributes over their product.

By Jensen's Inequality $E\left[\frac{1}{\hat{\sigma}_F^2}\right] > \frac{1}{E[\hat{\sigma}_F^2]}$ for convex function.

So two are not equal.