a1q5

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q5 Question: Is the minimum value of MSE unique(i.e. there exits two different complexicities that MSE are minimum)?

Answer: True.

Explanation: $MSE = [Bias(\hat{f}(x_0))]^2 + Var(\hat{f}(x_0)) + Var(\epsilon)$. The bias decreases as complexity increases, since it becomes more and more close to the value of y. In addition, the variance increases as complexity increases, since the model follows the error/noise too closely. Since $Var(\epsilon)$ is constant, there minimum value of MSE is unique.