Model Fitting

Which of the following statements are true? Check all that apply.

(i) A model with more parameters is more prone to overfitting and typically has higher variance.

(TRUE) More model parameters increases the model's complexity, so it can more tightly fit data in training, increasing the chances of overfitting.

(ii) If a neural network has much lower training error than test error, then adding more layers will help bring the test error down because we can fit the test set better.

(FALSE) With lower training than test error, the model has high variance. Adding more layers will increase model complexity, making the variance problem worse.

(iii) If a learning algorithm is suffering from high bias, only adding more training examples may not improve the test error significantly.

(TRUE) With high bias, the model is not fitting the training data currently present, so adding more data is unlikely to help.

(iv) When debugging learning algorithms, it is useful to plot a learning curve to understand if there is a high bias or high variance problem.

(TRUE) The shape of a learning curve is a good indicator of bias or variance problems with your learning algorithm.