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9.3 Review Questions

## 9.3 Review Questions

### 9.3.R1

1/1 point (graded)

True or False: If no linear boundary can perfectly classify all the training data, this means we need to use a feature expansion.

☐ True

☒ False



#### Explanation

As in any statistical problem, we will always do better on the training data if we use a feature expansion, but that doesn't mean we will improve the test error. Not all regression lines should perfectly interpolate all the training points, and not all classifiers should perfectly classify all the training data.

Submit

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**i** Answers are displayed within the problem

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### 9.3.R2

1/1 point (graded)

True or False: The computational effort required to solve a kernel support vector machine becomes greater and greater as the dimension of the basis increases.

☐ True

☒ False



### Explanation

The beauty of the "kernel trick" is that, even if there is an infinite-dimensional basis, we need only look at the  $n^2$  inner products between training data points.

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**i** Answers are displayed within the problem