W3-2 Regularization

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Right: 1, 2, 3, 4, 5

1. You are training a classification model with logistic regression. Which of the following statements are true? Check all that apply.

- [ ] Adding a new feature to the model always results in equal or better performance on examples not in the training set.
- [x] Adding many new features to the model makes it more likely to overfit the training set.
- [ ] Introducing regularization to the model always results in equal or better performance on examples not in the training set.
- [ ] Introducing regularization to the model always results in equal or better performance on the training set.

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

- [x] Consider a classification problem. Adding regularization may cause your classifier to incorrectly classify some training examples (which it had correctly classified when not using regularization, i.e. when $\lambda = 0$).
- [ ] Using too large a value of λ can cause your hypothesis to overfit the data; this can be avoided by reducing λ.
- [ ] Because logistic regression outputs values $0 \leq h_\theta(x) \leq 1$, it's range of output values can only be "shrunk" slightly by regularization anyway, so regularization is generally not helpful for it.
- [ ] Using a very large value of λ cannot hurt the performance of your hypothesis; the only reason we do not set λ to be too large is to avoid numerical problems.