✓ **Congratulations! You passed!**

Grade	Latest Submission	To pass 80% or	
received 100%	Grade 100%	higher	

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1. Which of the following can address overfitting?   **1 / 1 point**

   ☑ Collect more training data

   > ✓ **Correct**
   > If the model trains on more data, it may generalize better to new examples.

   ☑ Apply regularization

   > ✓ **Correct**
   > Regularization is used to reduce overfitting.

   ☑ Select a subset of the more relevant features.
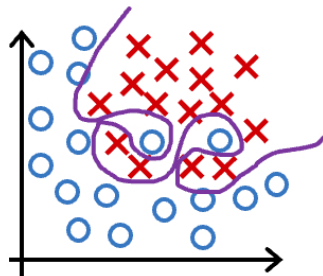
   > ✓ **Correct**
   > If the model trains on the more relevant features, and not on the less useful features, it may generalize better to new examples.

   ☐ Remove a random set of training examples

2. You fit logistic regression with polynomial features to a dataset, and your model looks like this.   **1 / 1 point**

   What would you conclude? (Pick one)

   ◉ The model has high variance (overfit). Thus, adding data is likely to help

   ◯ The model has high variance (overfit). Thus, adding data is, by itself, unlikely to help much.

   ◯ The model has high bias (underfit). Thus, adding data is, by itself, unlikely to help much.

   ◯ The model has high bias (underfit). Thus, adding data is likely to help

   > ✓ **Correct**
   > The model has high variance (it overfits the training data). Adding data (more training examples) can help.

3.   **1 / 1 point**

Regularization

$$\min_{\vec{w},b} J(\vec{w},b) = \min_{\vec{w},b} \left[\underbrace{\frac{1}{2m}\sum_{i=1}^{m}\left(f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)}\right)^2}_{\text{mean squared error}} + \underbrace{\frac{\lambda}{2m}\sum_{j=1}^{n}w_j^2}_{\text{regularization term}} \right]$$

Suppose you have a regularized linear regression model. If you increase the regularization parameter λ, what do you expect to happen to the parameters $w_1, w_2, ..., w_n$?

◉ This will reduce the size of the parameters $w_1, w_2, ..., w_n$

◯ This will increase the size of the parameters $w_1, w_2, ..., w_n$

✓ **Correct**
Regularization reduces overfitting by reducing the size of the parameters $w_1, w_2, ...w_n$.