1.   **1 / 1 punto**

In the context of machine learning, what is a diagnostic?

○ A process by which we quickly try as many different ways to improve an algorithm as possible, so as to see what works.

◉ A test that you run to gain insight into what is/isn't working with a learning algorithm.

○ This refers to the process of measuring how well a learning algorithm does on a test set (data that the algorithm was not trained on).

○ An application of machine learning to medical applications, with the goal of diagnosing patients' conditions.

> ⊘ **Correcto**
> Yes! A diagnostic is a test that you run to gain insight into what is/isn't working with a learning algorithm, to gain guidance into improving its performance.

2.   **1 / 1 punto**

True/False? It is always true that the better an algorithm does on the training set, the better it will do on generalizing to new data.

○ True

◉ False

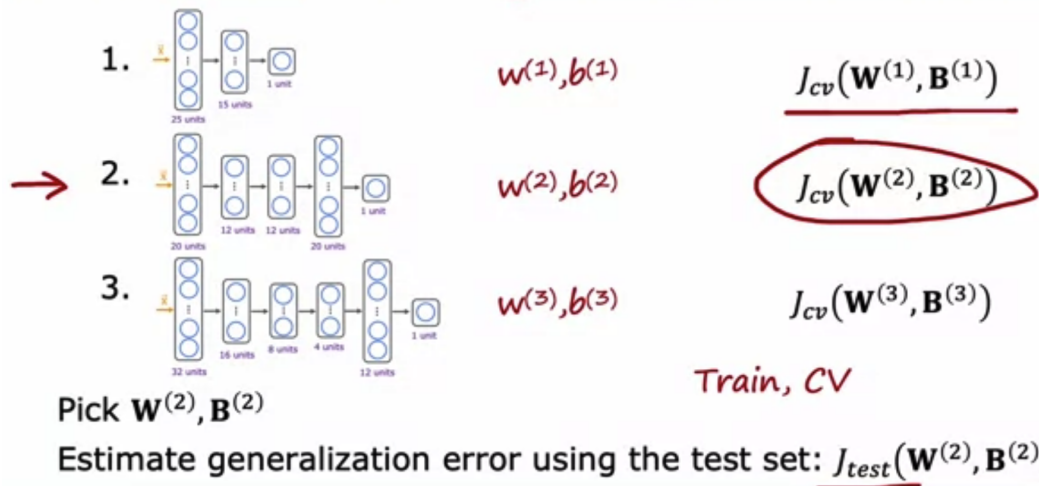> ⊘ **Correcto**
> Actually, if a model overfits the training set, it may not generalize well to new data.

3.   **1 / 1 punto**

Model selection – choosing a neural network architecture

1. $w^{(1)}, b^{(1)}$ $\underline{J_{cv}(W^{(1)}, B^{(1)})}$

→ 2. $w^{(2)}, b^{(2)}$ $\boxed{J_{cv}(W^{(2)}, B^{(2)})}$

3. $w^{(3)}, b^{(3)}$ $J_{cv}(W^{(3)}, B^{(3)})$

Train, CV

Pick $W^{(2)}, B^{(2)}$

Estimate generalization error using the test set: $J_{test}(W^{(2)}, B^{(2)})$

For a classification task; suppose you train three different models using three different neural network architectures. Which data do you use to evaluate the three models in order to choose the best one?

○ The test set

○ The training set

○ All the data -- training, cross validation and test sets put together.

◉ The cross validation set

> ✓ **Correcto**
>
> Correct. Use the cross validation set to calculate the cross validation error on all three models in order to compare which of the three models is best.