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1. Which of the following is a valid step used during feature scaling?

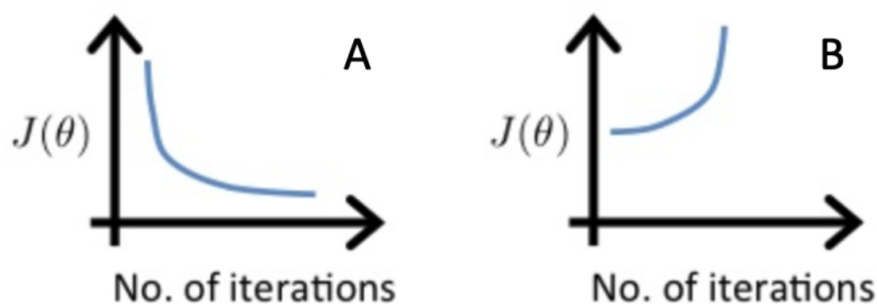
- ☒ Subtract the mean (average) from each value and then divide by the (max - min).
- ☐ Add the mean (average) from each value and then divide by the (max - min).

✓ Correct

This is called mean normalization.

2. Suppose a friend ran gradient descent three separate times with three choices of the learning rate α and plotted the learning curves for each (cost J for each iteration).

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For which case, A or B, was the learning rate α likely too large?

- ☐ Neither Case A nor B
- ☐ Both Cases A and B
- ☒ case B only
- ☐ case A only

✓ Correct

The cost is increasing as training continues, which likely indicates that the learning rate α is too large.

3. Of the circumstances below, for which one is feature scaling particularly helpful?

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- ☐ Feature scaling is helpful when all the features in the original data (before scaling is applied) range from 0 to 1.
- ☒ Feature scaling is helpful when one feature is much larger (or smaller) than another feature.

✓ Correct

For example, the “house size” in square feet may be as high as 2,000, which is much larger than the feature “number of bedrooms” having a value between 1 and 5 for most houses in the modern era.

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4. You are helping a grocery store predict its revenue, and have data on its items sold per week, and price per item. What could be a useful engineered feature?

- ☐ For each product, calculate the number of items sold divided by the price per item.
- ☒ For each product, calculate the number of items sold times price per item.

✓ Correct

This feature can be interpreted as the revenue generated for each product.

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5. True/False? With polynomial regression, the predicted values $f_{w,b}(x)$ does not necessarily have to be a straight line (or linear) function of the input feature x .

- ☒ True
- ☐ False

✓ Correct

A polynomial function can be non-linear. This can potentially help the model to fit the training data better.