# Review Question 1

(1/1 point)

Please complete the sentence so that it makes the most sense:

Principal component analysis...

- Requires you have labeled features to use as a metric for determining which features are most important
- Is a dimensionality reduction technique that builds a simpler, non-linear projection or 'shadow' of your dataset
- Asserts you have more features than samples so you can avoid the curse of dimensionality and the matrix math works out
- **Ensures each newly computed feature is orthogonal to all previously computed ones, minimizing overlaps** ✔

Dive Deeper

5. Data Modeling

**EXPLANATION**

Unsupervised learning methods do not require or examine your labels / classifications. In fact, you should remove them from your dataset when you perform PCA on it.

PCA also is a linear transformation.

Th last option was tricky; if you have more features than samples, PCA will only be able to create as many components as the number of samples you have. It is more ideal to have more samples than features, so that your hard limit of how many components you reduce to is not based on how much data you've collected.

*You have used 1 of 2 submissions*

## Review Question 2

(1/1 point)
Which of these statements is problematic?

- PCA can be used to discover the underlying features being assessed by a dataset
- The results of PCA depend on the scaling of your data, so having a feature with units of 'light-years' and another feature with units of 'GHz' may be disastrous
- When applied to non-linear data, PCA generally isn't as effective as when applied to linear data
- Since PCA is sensitive to feature scaling, if you have a feature that is a linear transformation of

the other, e.g. feature2 = 10 * feature1, then both features will be ignored ✔

**EXPLANATION**

PCA is sensitive to feature scaling, but having two 100% correlated features won't result in them both being ignored. Rather PCA will recognize that they both measure in the same 'direction', perhaps giving them more weight if anything.

*You have used 1 of 2 submissions*