# Week 10 Quiz

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## Multiple Choice

1/1 point (graded)
Principle component analysis projects data into a lower dimension by minimizing _____

- ○ the dimensionality of the projection
- ◉ the sum of squared errors of the projection ✔
- ○ the absolut errors of the projection
- ○ the total number of projections

Submit You have used 1 of 1 attempt

## Checkboxes

1/1 point (graded)
Check all that apply: PCA can be done using _____

- ☑ an eigendecomposition
- ☐ unconstrained least squares minimization
- ☐ random projections
- ☑ the singular value decomposition

✔

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**Week 10 Discussion Questions**

## Multiple Choice

1/1 point (graded)
True or False: The first principle component selects the direction of greatest variation in the data.

- (•) TRUE ✔
- ( ) FALSE

Submit You have used 1 of 1 attempt

## Text Input

1/1 point (graded)
Probabilistic PCA introduces the _____ distribution to the PCA modeling framework.

Gaussian ✔

Submit You have used 1 of 1 attempt

## Multiple Choice

1/1 point (graded)
True or False: Kernel PCA must project data into a lower dimensional space than that of the original data.

- ( ) TRUE
- (•) FALSE ✔

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✔ Correct (1/1 point)

## Text Input

1/1 point (graded)
A second-order Markov chain uses the previous _____ observations when making a prediction of the next observation.

2 ✔

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## Numerical Input

1/1 point (graded)
Enter the correct number: A 10x10 matrix can encode the transition probabilities of a ____-state Markov chain.

10 ✔

10

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## Numerical Input

1/1 point (graded)
The stationary distribution of a Markov chain is related to which eigenvector? Enter the index of this vector.

1 ✔

1

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## Multiple Choice

1/1 point (graded)
True or False: An iterative algorithm is required to find the maximum likelihood estimate of the transition matrix associated with an observed Markov chain.

- TRUE

FALSE ✔

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## Multiple Choice

1/1 point (graded)

True or False: In the context of the lecture discussion, a random walk on a graph containing absorbing states is guaranteed to eventually terminate at one of these absorbing states.

TRUE ✔

FALSE

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