

Calculate  and .

What do you notice about either of them?





 Is an eigenvector of ? If so, find the eigenvalue.

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 Show that 5 is an eigenvalue of the matrix , and find a corresponding eigenvector.

The eigenvector must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but an eigenvalue may be \_\_\_\_\_\_\_\_\_\_.

So  is an eigenvalue of an  matrix, if and only if



What would another name for the solutions to this equation be?

But we already know that any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of , so we call it the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of *A*.



Find a basis for the eigenspace given



Find the eigenvalues of .

What does it mean for a matrix A to have an eigenvalue of 0?

This means that 0 is an eigenvalue of A if and only if A is \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

This will be added to our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ in 5.2.



Proof:





