Quiz for section exam 2

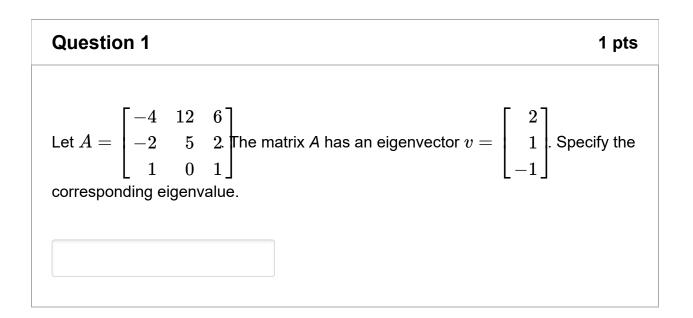
(1) This is a preview of the published version of the quiz

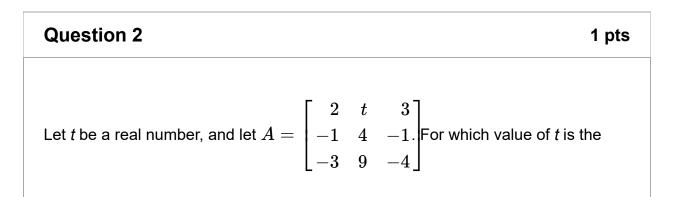
Started: Apr 25 at 4:29pm

Quiz Instructions

This exam is timed. You have 50 minutes from the time that you start. There are 10 questions total, so do not linger if you have difficulties with one question - you only have 5 minutes for each one.

Several of the questions ask you to identify which of a given number of statements are true or false. Be sure to write "T" or "F" in the given box (without the quotation marks). Do NOT write "t" or "f" or "true" or"false" or anything like that, just T or F.



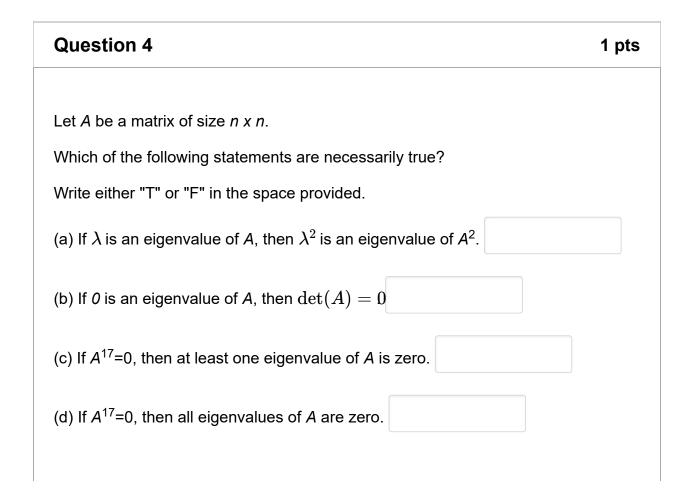


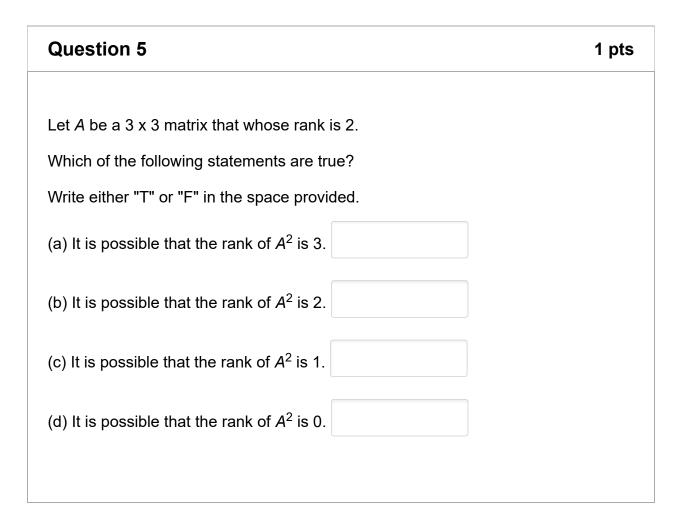
1 pts

| vector $v =$ | $\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ | an eigenvector of A? |
|--------------|---|----------------------|
| | | |

Question 3

| The matrix A has the characteristic polynomial $p(\lambda)=\lambda^3-\lambda$ How many distinct |
|---|
| eigenvalues does A have? |





Question 6

Let A be a 3 x 3 matrix, and let $\{u, v, w\}$ be a set of three linearly independent (nonzero) vectors in \mathbb{R}^3 . You know that Au = 3u that Av = 3v, and that Aw = 7w.

Which of the following statements are true?

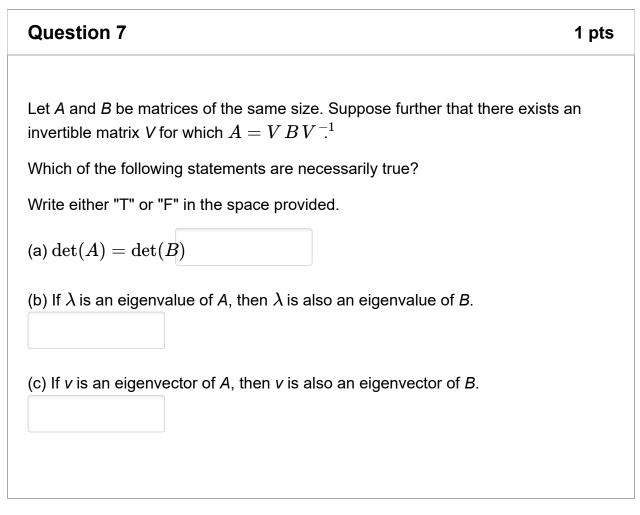
Write either "T" or "F" in the space provided.

(a) The vector u+v is an eigenvector of A.

(b) The vector u+w is an eigenvector of A.

1 pts

| (c) The vector <i>u-v</i> is an | eigenvector of A with eigen | value 0. |
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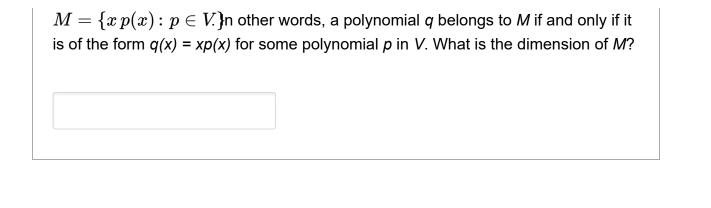
| Question 8 | 1 pts | | | |
|--|-------|--|--|--|
| | | | | |
| Let $V=\mathbb{R}^3$ and $W=\mathbb{R}^4$. Further, let A be a matrix of size 4 x 3. | | | | |
| Which of the following statements are necessarily true? | | | | |
| Write either "T" or "F" in the space provided. | | | | |
| (a) If $\{u,v,w\}$ is a linearly independent set in V, then $\{Au,Av,Aw\}$ is a linearly | | | | |
| independent set in W . | | | | |

| (b) If $\{Au, Av, Aw\}$'s a linearly independent set in <i>W</i> , then $\{u, v, w\}$'s a linearly independent set in <i>V</i> . (c) If $\{Au, Av, Aw\}$'s a linearly independent set in <i>W</i> , then $\{Au, Av, Aw\}$'s a | | | | | | |
|--|---|--|--|--|--|--|
| basis for <i>W</i> . | | | | | | |
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| Question 9 1 pt | S | | | | | |
| | | | | | | |
| Let <i>A</i> be a matrix of size 4 x 3. You know that there exists a nonzero vector x such that $Ax=0$. You also know that there exist two vectors y and z such that $\{Ax, Ay\}$ is a linearly independent set in \mathbb{R}^4 . | | | | | | |
| Which of the following statements are necessarily true? | | | | | | |
| Write either "T" or "F" in the space provided. | | | | | | |
| (a) It is possible that the rank of <i>A</i> is 1. | | | | | | |
| (b) It is possible that the rank of <i>A</i> is 2. | | | | | | |
| (c) It is possible that the rank of <i>A</i> is 3. | | | | | | |
| (d) It is possible that the rank of <i>A</i> is 4. | | | | | | |
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Question 10

1 pts

Let $V=\mathcal{P}_2$ and $W=\mathcal{P}_3$. Further, let \emph{M} be the subspace of \emph{W} defined by



Quiz saved at 4:29pm Submit Quiz