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Courses » **Matrix Solvers** Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 7 - Week 6 : unit 6

Week 6 Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2018-09-12, 23:59 IST.

1) Gram-Schmidt process on $\begin{Bmatrix}1\\2\\3\end{Bmatrix}, \begin{Bmatrix}5\\4\\3\end{Bmatrix}$ *and* $\begin{Bmatrix}2\\1\\0\end{Bmatrix}$ will give

1 point

- a) A set of three unit vectors
- b) A set of two unit vectors
- c) A set of three dependent vectors
- d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) A set of two unit vectors

2) Gram-Schmidt process on $\begin{Bmatrix}1\\2\\0\end{Bmatrix}, \begin{Bmatrix}8\\1\\-6\end{Bmatrix}$ *and* $\begin{Bmatrix}0\\0\\1\end{Bmatrix}$ will give

1 point

- a) $\begin{Bmatrix}1\\0\\0\end{Bmatrix}, \begin{Bmatrix}0\\1\\0\end{Bmatrix}$ *and* $\begin{Bmatrix}0\\0\\1\end{Bmatrix}$
- b) $\frac{1}{\sqrt{5}}\begin{Bmatrix}1\\2\\0\end{Bmatrix}, \frac{1}{\sqrt{101}}\begin{Bmatrix}8\\1\\6\end{Bmatrix}$ *and* $\begin{Bmatrix}0\\0\\1\end{Bmatrix}$
- c) $\frac{1}{\sqrt{5}}\begin{Bmatrix}1\\2\\0\end{Bmatrix}, \frac{1}{3}\begin{Bmatrix}2\\-1\\-2\end{Bmatrix}$ *and* $\frac{1}{3\sqrt{5}}\begin{Bmatrix}4\\-2\\5\end{Bmatrix}$
- d) $\frac{1}{\sqrt{5}}\begin{Bmatrix}1\\2\\0\end{Bmatrix}, \frac{1}{3\sqrt{5}}\begin{Bmatrix}2\\1\\-2\end{Bmatrix}$ *and* $\frac{1}{3}\begin{Bmatrix}4\\-2\\5\end{Bmatrix}$

No, the answer is incorrect.

Feedback for Week 6

Week 7 : Unit 7

Week 8 : Unit 8

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Week 10 : Unit 10

Week 11

Week 12

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ce De Gram-Schmidt process on $\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}$, $\begin{Bmatrix} 1 \\ 0 \\ 1 \end{Bmatrix}$ *and* $\begin{Bmatrix} 1 \\ 1 \\ 2 \end{Bmatrix}$ will give

a) $\frac{1}{\sqrt{3}}\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}, \frac{1}{\sqrt{6}}\begin{Bmatrix} 1 \\ 2 \\ 1 \end{Bmatrix}$ *and* $\frac{1}{\sqrt{2}}\begin{Bmatrix} -1 \\ 0 \\ 1 \end{Bmatrix}$

b) $\frac{1}{\sqrt{3}}\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}, \frac{1}{\sqrt{6}}\begin{Bmatrix} 1 \\ -2 \\ 1 \end{Bmatrix}$ *and* $\frac{1}{\sqrt{2}}\begin{Bmatrix} -1 \\ 0 \\ 1 \end{Bmatrix}$

c) $\frac{1}{\sqrt{3}}\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}, \frac{1}{\sqrt{6}}\begin{Bmatrix} 1 \\ -2 \\ 1 \end{Bmatrix}$ *and* $\frac{1}{\sqrt{2}}\begin{Bmatrix} 1 \\ 0 \\ 1 \end{Bmatrix}$

d) $\frac{1}{\sqrt{3}}\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}, \frac{1}{\sqrt{6}}\begin{Bmatrix} 2 \\ 1 \\ 1 \end{Bmatrix}$ *and* $\frac{1}{\sqrt{2}}\begin{Bmatrix} 1 \\ 0 \\ 1 \end{Bmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

a) $\frac{1}{\sqrt{3}}\begin{Bmatrix} 1 \\ -1 \\ 1 \end{Bmatrix}, \frac{1}{\sqrt{6}}\begin{Bmatrix} 1 \\ 2 \\ 1 \end{Bmatrix}$ *and* $\frac{1}{\sqrt{2}}\begin{Bmatrix} -1 \\ 0 \\ 1 \end{Bmatrix}$

4) Why modified Gram-Schmidt is often used instead of classical Gram-Schmidt algorithm *1 point*

a) For computing less number of basis

b) For fast computation

c) To avoid numerical instability

d) To obtain unit vectors

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) To avoid numerical instability

5) In QR Triangulation *1 point*

a) Q is upper triangular and R is lower triangular

b) Q is diagonal and R is upper triangular

c) Q is orthogonal and R is Symmetric

d) Q is orthogonal and R is lower triangular

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) Q is orthogonal and R is lower triangular

6) Which one cannot be an eigenvalue of a positive definite matrix *0 points*

a) 2 + 3i

b) -4

c) 0

d) √3

No, the answer is incorrect.
Score: 0

Accepted Answers:

c) 0

7) Which one cannot be eigenvalues of a symmetric positive definite matrix ***0 points***

- a) 2 + 3i
- b) - 4
- c) √3
- d) π

No, the answer is incorrect.
Score: 0

Accepted Answers:
a) 2 + 3i

8) What will be the same for matrix A and A^2 ***1 point***

- a) Eigenvalues
- b) Trace
- c) Eigenvectors
- d) Null space

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) Eigenvectors

9) Find the eigenvalues of matrix $\begin{bmatrix} 5 & 4 \\ -2 & 1 \end{bmatrix}$ ***1 point***

- a) 3, 2
- b) 3+√6,3−√6
- c) 3+2i,3−2i
- d) 2i,3+2√22

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) 3+2i,3−2i

10) If eigenvectors of a matrix A are orthogonal then ***1 point***

- a) A is real
- b) A is orthogonal
- c) A is positive definite
- d) A is symmetric

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) A is symmetric

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