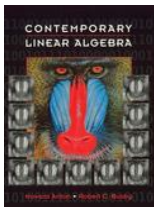


Chapter 6 , Section 2 of *Contemporary Linear Algebra* by Anton and Busby



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1. Find the matrix that is not orthogonal.

▶ A

$$\begin{pmatrix} 20/29 & 21/29 \\ -21/29 & 20/29 \end{pmatrix}$$

▶ B

$$\begin{pmatrix} 1/2 & -\sqrt{3}/2 \\ \sqrt{3}/2 & 1/2 \end{pmatrix}$$

▶ C

$$\begin{pmatrix} 1/2 & \sqrt{3}/2 \\ \sqrt{3}/2 & -1/2 \end{pmatrix}$$

▶ D

$$\begin{pmatrix} 1/\sqrt{3} & 1/\sqrt{2} & 1/\sqrt{6} \\ 1/\sqrt{3} & -1/\sqrt{2} & 1/\sqrt{6} \\ 1/\sqrt{3} & 0 & -2/\sqrt{6} \end{pmatrix}$$

▶ E

$$\begin{pmatrix} -4/5 & 0 & 3/5 \\ 9/25 & -4/5 & 12/25 \\ -12/25 & -3/5 & -16/25 \end{pmatrix}$$

Next Question

2. Find the matrix that does not represent R_θ or H_θ for any θ .

▶ A

$$\begin{pmatrix} 1/\sqrt{2} & -1/\sqrt{2} \\ -1/\sqrt{2} & 1/\sqrt{2} \end{pmatrix}$$

▶ B

$$\begin{pmatrix} 1/2 & \sqrt{3}/2 \\ \sqrt{3}/2 & -1/2 \end{pmatrix}$$

▶ C

$$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

▶ D

$$\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$$

▶ E

$$\begin{pmatrix} 1/2 & -\sqrt{3}/2 \\ \sqrt{3}/2 & 1/2 \end{pmatrix}$$

Next Question

3. The rectangle with vertices $(0, 0)$, $(1, 0)$, $(1, 4)$, $(0, 4)$ is reflected in the x -axis. Find the vertices of its reflection.

- ▶ A $(0, 0)$, $(1, 0)$, $(1, 4)$, $(0, 4)$
- ▶ B $(0, 0)$, $(1, 0)$, $(-1, 4)$, $(0, 4)$
- ▶ C $(0, 0)$, $(-1, 0)$, $(-1, -4)$, $(0, -4)$
- ▶ D $(0, 0)$, $(1, 0)$, $(-1, -4)$, $(0, -4)$
- ▶ E $(0, 0)$, $(1, 0)$, $(1, -4)$, $(0, -4)$

Next Question

4. Since three consecutive rotations of angle θ is the same as one rotation of angle 3θ we have $R_\theta^3 = R_{3\theta}$. The formula for R_θ can be used to deduce the following triple angle formula.

▶ A $\cos(3\theta) = 4 \cos^3(\theta) - 3 \cos(\theta)$

▶ B $\cos(3\theta) = 2 \cos^3(\theta) - \cos(\theta)$

▶ C $\cos(3\theta) = 4 \cos^3(\theta) + 3 \cos(\theta)$

▶ D $\cos(3\theta) = 2 \cos^3(\theta) + 3 \cos(\theta)$

▶ E $\cos(3\theta) = -4 \cos^3(\theta) - 3 \cos(\theta)$

Next Question

5. Let $T : \mathbf{R}^2 \rightarrow \mathbf{R}^2$ be a linear operator that reflects a vector about the line $y = -x$ and then projects the result onto the y -axis. The standard matrix of T is

▶ A

$$\begin{pmatrix} -1 & 0 \\ 0 & 0 \end{pmatrix}$$

▶ B

$$\begin{pmatrix} 0 & -1 \\ 0 & 0 \end{pmatrix}$$

▶ C

$$\begin{pmatrix} 0 & 0 \\ 0 & -1 \end{pmatrix}$$

▶ D

$$\begin{pmatrix} 0 & 0 \\ -1 & 0 \end{pmatrix}$$

▶ E

$$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$$

No more questions



RIGHT!

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Wrong...try again

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