

Watch. Practice. Understand. | Lesson 248

The Short Cut of Finding An Inverse Matrix Pre Calculus 9.6

Watch the matching video: <https://www.youtube.com/watch?v=17yn-X81drc>

Practice focus: Determinants and inverse matrices

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find the determinant of $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$.

02 Find the inverse of $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$.

03 Does $\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$ have an inverse?

04 Find the determinant of $\begin{bmatrix} 2 & 1 & 0 \\ 0 & 3 & 4 \\ 0 & 0 & 5 \end{bmatrix}$.

Worked answers | Lesson 248

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Practice focus: Determinants and inverse matrices

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01 Find the determinant of $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$.

$$ad - bc = 6 - 5 = 1.$$

02 Find the inverse of $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$.

Since determinant = 1, interchange diagonal entries and negate off-diagonals: $\begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix}$.

03 Does $\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$ have an inverse?

No. Determinant = $4 - 4 = 0$, so the matrix is singular.

04 Find the determinant of $\begin{bmatrix} 2 & 1 & 0 \\ 0 & 3 & 4 \\ 0 & 0 & 5 \end{bmatrix}$.

For a triangular matrix the determinant is the diagonal product: $2 \cdot 3 \cdot 5 = 30$.