

Find the inverse of the matrix.

1. $\begin{bmatrix} 4 & -5 \\ -3 & 4 \end{bmatrix}$ $16 - 15 = 1$

5. $\begin{bmatrix} 7 & 2 \\ 3 & 1 \end{bmatrix}$ $7 - 6 = 1$

2. $\begin{bmatrix} 6 & 2 \\ 8 & 3 \end{bmatrix}$ $18 - 16 = 2$

6. $\begin{bmatrix} -7 & -2 \\ -4 & 1 \end{bmatrix}$ $-7 - 8 = -15$

3. $\begin{bmatrix} 1 & 8 \\ 1 & 7 \end{bmatrix}$ $7 - 8 = -1$

7. $\begin{bmatrix} -6 & -7 \\ 2 & 2 \end{bmatrix}$ $-12 + 14 = 2$

4. $\begin{bmatrix} -6 & 17 \\ 1 & -3 \end{bmatrix}$ $18 - 17 = 1$

8. $\begin{bmatrix} 5 & -4 \\ -4 & 4 \end{bmatrix}$ $20 - 16 = 4$

See next page for answers #1-8

Tell whether the matrices are inverses of each other.

9. $\begin{bmatrix} 10 & -3 \\ 3 & -1 \end{bmatrix}$ and $\begin{bmatrix} 1 & 3 \\ 3 & -10 \end{bmatrix}$

10. $\begin{bmatrix} 11 & 2 & -8 \\ 4 & 1 & -3 \\ -8 & -1 & 6 \end{bmatrix}$ and $\begin{bmatrix} 3 & -4 & 2 \\ 0 & 2 & 1 \\ 4 & -5 & 3 \end{bmatrix}$

11. $\begin{bmatrix} 0 & 2 & -1 \\ 5 & 2 & 3 \\ 7 & 3 & 4 \end{bmatrix}$ and $\begin{bmatrix} -2 & -10 & 8 \\ 11 & 7 & -5 \\ 1 & 12 & -10 \end{bmatrix}$

$\begin{bmatrix} 0 + 22 - 1 \\ 21 \end{bmatrix}$

Already says not inverses of each other.

12. What is the identity matrix for 2 x 2 matrices? For 3 x 3 matrices?

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

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

$$1. \frac{1}{1} \begin{bmatrix} 4 & 5 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} 4 & 5 \\ 3 & 4 \end{bmatrix}$$

$$2. \frac{1}{2} \begin{bmatrix} 3 & -2 \\ -8 & 6 \end{bmatrix} = \begin{bmatrix} 3/2 & -1 \\ -4 & 3 \end{bmatrix}$$

$$3. -1 \begin{bmatrix} 7 & -8 \\ -1 & 1 \end{bmatrix} = \begin{bmatrix} -7 & 8 \\ 1 & -1 \end{bmatrix}$$

$$4. \begin{bmatrix} -3 & -17 \\ -1 & -6 \end{bmatrix}$$

$$5. \begin{bmatrix} 1 & -2 \\ -3 & 7 \end{bmatrix}$$

$$6. -\frac{1}{15} \begin{bmatrix} 1 & 2 \\ 4 & -7 \end{bmatrix} = \begin{bmatrix} -1/15 & -2/15 \\ -4/15 & 7/15 \end{bmatrix}$$

$$7. \frac{1}{2} \begin{bmatrix} 2 & 7 \\ -2 & -6 \end{bmatrix} = \begin{bmatrix} 1 & 7/2 \\ -1 & -3 \end{bmatrix}$$

$$8. \frac{1}{4} \begin{bmatrix} 4 & 4 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 1 & 5/4 \end{bmatrix}$$

$$9. \begin{bmatrix} 10-9 & 30+30 \\ 3-3 & 9+10 \end{bmatrix} = \begin{bmatrix} 1 & 60 \\ 0 & 19 \end{bmatrix} \text{ no!!}$$

$$10. \begin{bmatrix} 33+0-32 & -44+4+40 & 22+2-24 \\ 12+0-12 & -16+2+15 & 8+1-9 \\ -24+0+24 & 32-2-30 & -16-1+18 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

yes!!
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