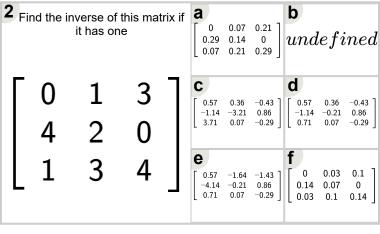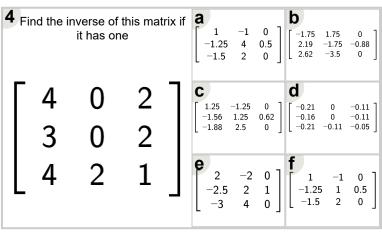# mobius

Math worksheet on *'Matrices - Find Inverse (3x3) (Level 1)'*. Part of a broader unit on *'Matrices'*
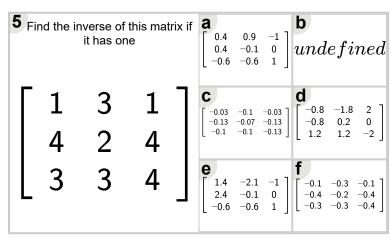
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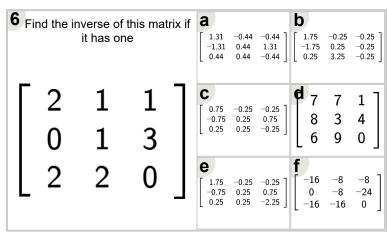
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1 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 3 & 1 & 3 \\ 4 & 3 & 0 \\ 2 & 4 & 2 \end{bmatrix}$$

a
$$\begin{bmatrix} 0.15 & 0.25 & -0.22 \\ -0.2 & 0 & 0.3 \\ 0.25 & -0.25 & 0.12 \end{bmatrix}$$

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

c
$$\begin{bmatrix} 2 & 6 & 0 \\ 2 & 1 & 3 \\ 4 & 1 & 8 \end{bmatrix}$$

d
$$\begin{bmatrix} 0.15 & 0.25 & -0.22 \\ -0.2 & 0 & 0.3 \\ 0.25 & 1.75 & 0.12 \end{bmatrix}$$

e
$$\begin{bmatrix} 120 & 40 & 120 \\ 160 & 120 & 0 \\ 80 & 160 & 80 \end{bmatrix}$$

f
$$\begin{bmatrix} -0.3 & -0.5 & 0.45 \\ 0.4 & 0 & -0.6 \\ -0.5 & 0.5 & -0.25 \end{bmatrix}$$

---

2 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 0 & 1 & 3 \\ 4 & 2 & 0 \\ 1 & 3 & 4 \end{bmatrix}$$

a
$$\begin{bmatrix} 0 & 0.07 & 0.21 \\ 0.29 & 0.14 & 0 \\ 0.07 & 0.21 & 0.29 \end{bmatrix}$$

b *undefined*

c
$$\begin{bmatrix} 0.57 & 0.36 & -0.43 \\ -1.14 & -3.21 & 0.86 \\ 3.71 & 0.07 & -0.29 \end{bmatrix}$$

d
$$\begin{bmatrix} 0.57 & 0.36 & -0.43 \\ -1.14 & -0.21 & 0.86 \\ 0.71 & 0.07 & -0.29 \end{bmatrix}$$

e
$$\begin{bmatrix} 0.57 & -1.64 & -1.43 \\ -4.14 & -0.21 & 0.86 \\ 0.71 & 0.07 & -0.29 \end{bmatrix}$$

f
$$\begin{bmatrix} 0 & 0.03 & 0.1 \\ 0.14 & 0.07 & 0 \\ 0.03 & 0.1 & 0.14 \end{bmatrix}$$

---

3 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 3 & 1 & 4 \\ 2 & 3 & 2 \\ 3 & 4 & 3 \end{bmatrix}$$

a
$$\begin{bmatrix} 1.5 & 19.5 & -15 \\ 0 & -4.5 & 3 \\ -1.5 & -13.5 & 10.5 \end{bmatrix}$$

b
$$\begin{bmatrix} -1 & -13 & 10 \\ 0 & 3 & -2 \\ 1 & 9 & -7 \end{bmatrix}$$

c *undefined*

d
$$\begin{bmatrix} -1.5 & -19.5 & 15 \\ 0 & 4.5 & -3 \\ 1.5 & 13.5 & -10.5 \end{bmatrix}$$

e
$$\begin{bmatrix} 0.75 & 0.25 & 1 \\ 0.5 & 0.75 & 0.5 \\ 0.75 & 1 & 0.75 \end{bmatrix}$$

f
$$\begin{bmatrix} 9 & 6 & 5 \\ 0 & 4 & 1 \\ 4 & 6 & 0 \end{bmatrix}$$

---

4 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 4 & 0 & 2 \\ 3 & 0 & 2 \\ 4 & 2 & 1 \end{bmatrix}$$

a
$$\begin{bmatrix} 1 & -1 & 0 \\ -1.25 & 4 & 0.5 \\ -1.5 & 2 & 0 \end{bmatrix}$$

b
$$\begin{bmatrix} -1.75 & 1.75 & 0 \\ 2.19 & -1.75 & -0.88 \\ 2.62 & -3.5 & 0 \end{bmatrix}$$

c
$$\begin{bmatrix} 1.25 & -1.25 & 0 \\ -1.56 & 1.25 & 0.62 \\ -1.88 & 2.5 & 0 \end{bmatrix}$$

d
$$\begin{bmatrix} -0.21 & 0 & -0.11 \\ -0.16 & 0 & -0.11 \\ -0.21 & -0.11 & -0.05 \end{bmatrix}$$

e
$$\begin{bmatrix} 2 & -2 & 0 \\ -2.5 & 2 & 1 \\ -3 & 4 & 0 \end{bmatrix}$$

f
$$\begin{bmatrix} 1 & -1 & 0 \\ -1.25 & 1 & 0.5 \\ -1.5 & 2 & 0 \end{bmatrix}$$

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5 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 1 & 3 & 1 \\ 4 & 2 & 4 \\ 3 & 3 & 4 \end{bmatrix}$$

a
$$\begin{bmatrix} 0.4 & 0.9 & -1 \\ 0.4 & -0.1 & 0 \\ -0.6 & -0.6 & 1 \end{bmatrix}$$

b *undefined*

c
$$\begin{bmatrix} -0.03 & -0.1 & -0.03 \\ -0.13 & -0.07 & -0.13 \\ -0.1 & -0.1 & -0.13 \end{bmatrix}$$

d
$$\begin{bmatrix} -0.8 & -1.8 & 2 \\ -0.8 & 0.2 & 0 \\ 1.2 & 1.2 & -2 \end{bmatrix}$$

e
$$\begin{bmatrix} 1.4 & -2.1 & -1 \\ 2.4 & -0.1 & 0 \\ -0.6 & -0.6 & 1 \end{bmatrix}$$

f
$$\begin{bmatrix} -0.1 & -0.3 & -0.1 \\ -0.4 & -0.2 & -0.4 \\ -0.3 & -0.3 & -0.4 \end{bmatrix}$$

---

6 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 2 & 1 & 1 \\ 0 & 1 & 3 \\ 2 & 2 & 0 \end{bmatrix}$$

a
$$\begin{bmatrix} 1.31 & -0.44 & -0.44 \\ -1.31 & 0.44 & 1.31 \\ 0.44 & 0.44 & -0.44 \end{bmatrix}$$

b
$$\begin{bmatrix} 1.75 & -0.25 & -0.25 \\ -1.75 & 0.25 & -0.25 \\ 0.25 & 3.25 & -0.25 \end{bmatrix}$$

c
$$\begin{bmatrix} 0.75 & -0.25 & -0.25 \\ -0.75 & 0.25 & 0.75 \\ 0.25 & 0.25 & -0.25 \end{bmatrix}$$

d
$$\begin{bmatrix} 7 & 7 & 1 \\ 8 & 3 & 4 \\ 6 & 9 & 0 \end{bmatrix}$$

e
$$\begin{bmatrix} 1.75 & -0.25 & -0.25 \\ -0.75 & 0.25 & 0.75 \\ 0.25 & 0.25 & -2.25 \end{bmatrix}$$

f
$$\begin{bmatrix} -16 & -8 & -8 \\ 0 & -8 & -24 \\ -16 & -16 & 0 \end{bmatrix}$$

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7 Find the inverse of this matrix if it has one

$$\begin{bmatrix} 1 & 0 & 2 \\ 2 & 0 & 3 \\ 0 & 3 & 1 \end{bmatrix}$$

a *undefined*

b
$$\begin{bmatrix} 0.12 & 0 & 0.25 \\ 0.25 & 0 & 0.38 \\ 0 & 0.38 & 0.12 \end{bmatrix}$$

c
$$\begin{bmatrix} -3 & 2 & 0 \\ -0.67 & 0.33 & 0.33 \\ 2 & -1 & 0 \end{bmatrix}$$

d
$$\begin{bmatrix} -0.14 & 0 & -0.29 \\ -0.29 & 0 & -0.43 \\ 0 & -0.43 & -0.14 \end{bmatrix}$$

e
$$\begin{bmatrix} -3 & 3 & 0 \\ -0.67 & 0.33 & 0.33 \\ 2 & -1 & 0 \end{bmatrix}$$

f
$$\begin{bmatrix} 3 & 0 & 6 \\ 6 & 0 & 9 \\ 0 & 9 & 3 \end{bmatrix}$$