

# Let's Play

Matrices

## Who Wants To Be A Millionaire Student?

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### Millionaire Student

50:50

- ❖ \$ 1 Million
- ❖ \$ 500,000
- ❖ \$ 250,000
- ❖ \$ 125,000
- ❖ \$ 64,000
- ❖ \$ 32,000
- ❖ \$ 16,000
- ❖ \$ 8,000
- ❖ \$ 4,000
- ❖ \$ 2,000
- ❖ \$ 1,000
- ❖ \$ 500
- ❖ \$ 200
- ❖ \$ 100

**Sorry, that is not correct.  
Thank you for playing.**

Press ESC.

**Call on any adult  
or student.  
Your decision.**

Right Click.  
Choose Go,  
Previously Viewed.

**Ask The Audience.**

Right Click.  
Choose Go,  
Previously Viewed.

**Congratulations!  
You are now a  
MILLIONAIRE  
STUDENT!**

Press ESC.

That's right!  
Go to the NEXT question.

Is that your  
Final Answer?

Right Click,  
Choose Go,  
Previously Viewed,  
Click Answer Again.

### \$ 100 Question

What are the dimensions of this matrix:  $\begin{bmatrix} 6 & 2 \\ -1 & -2 \\ 0 & 5 \end{bmatrix}$

50:50



Final Answer?

A. 2 x 3

B. 3 x 2

C. 2 x 2

D. 3 x 3

### \$ 100 Question

What are the dimensions of this matrix:  $\begin{bmatrix} 6 & 2 \\ -1 & -2 \\ 0 & 5 \end{bmatrix}$

50:50



Final Answer?

A. 2 x 3

B. 3 x 2

C.

D.

### \$ 200 Question

Two matrices are equal if:

50:50



Final Answer?

A. The dimensions are the same and corresponding entries total 0

B. The dimensions have matching inside values and corresponding entries are equal

C. The dimensions are the same and corresponding entries are equal

D. The dimensions have matching outside values and corresponding entries are equal

### \$ 200 Question

Two matrices are equal if:

50:50



Final Answer?

A.

B. The dimensions have matching inside values and corresponding entries are equal

C. The dimensions are the same and corresponding entries are equal

D.

### \$ 500 Question

What are x and y?  $\begin{pmatrix} 3x & -2 \\ -1 & 8 \end{pmatrix} + \begin{pmatrix} -4 & 0 \\ -7 & -2 \end{pmatrix} = \begin{pmatrix} -16 & -2 \\ y & 0 \end{pmatrix}$

50:50



Final Answer?

A.  $x = -16/3, y = -1$

B.  $x = 16, y = -7$

C.  $x = 16/12, y = 7$

D.  $x = -4, y = -8$

### \$ 500 Question

What are x and y?  $\begin{pmatrix} 3x & -2 \\ -1 & 8 \end{pmatrix} + \begin{pmatrix} -4 & 0 \\ -7 & -2 \end{pmatrix} = \begin{pmatrix} -16 & -2 \\ y & 0 \end{pmatrix}$

50:50



Final Answer?

A.

B.  $x = 16, y = -7$

C.

D.  $x = -4, y = -8$

### \$ 1,000 Question

When multiplying matrices, the outside dimensions tell you:

50:50



Final Answer?

A. The dimensions of the solution matrix

B. Nothing

C. The number of columns

D. If the matrices can be multiplied

### \$ 1,000 Question

When multiplying matrices, the outside dimensions tell you:

50:50



Final Answer?

A. The dimensions of the solution matrix

B.

C.

D. If the matrices can be multiplied

### \$ 2,000 Question

What are the dimensions of the solution matrix of AB if A: 3 x 4 and B: 4 x 2?

50:50



Final Answer?

A. 3 x 4

B. 3 x 2

C. 4 x 4

D. 4 x 2

### \$ 2,000 Question

What are the dimensions of the solution matrix of AB if A: 3 x 4 and B: 4 x 2?

50:50



Final Answer?

A.



B. 3 x 2

C. 4 x 4

D.

**\$ 4,000 Question**

$\begin{bmatrix} -1 & -5 & 1.25 \\ 1 & -1.5 & -2.5 \end{bmatrix} * \begin{bmatrix} 1.2 \\ .2 \\ 0 \end{bmatrix} = ?$



50:50   *Final Answer ?*

A.  $\begin{bmatrix} .9 & 1 \\ -1.3 \end{bmatrix}$       B.  $\begin{bmatrix} .2 & -.3 & 1.25 \\ 1 & -1.5 & -2.5 \end{bmatrix}$

C. Dim Mismatch      D.  $\begin{bmatrix} [-1.3] \\ .9 & 1 \end{bmatrix}$

**\$ 4,000 Question**

$\begin{bmatrix} -1 & -5 & 1.25 \\ 1 & -1.5 & -2.5 \end{bmatrix} * \begin{bmatrix} 1.2 \\ .2 \\ 0 \end{bmatrix} = ?$



50:50   *Final Answer ?*

A.  $\begin{bmatrix} .9 & 1 \\ -1.3 \end{bmatrix}$       B.

C.       D.  $\begin{bmatrix} [-1.3] \\ .9 & 1 \end{bmatrix}$

**\$ 8,000 Question**

What is the determinant of  $\begin{bmatrix} 9 & 3 \\ -2 & 1 \end{bmatrix}$  ?



50:50   *Final Answer ?*

A. 15      B. 3

C. -15      D. -3

**\$ 8,000 Question**

What is the determinant of  $\begin{bmatrix} 9 & 3 \\ -2 & 1 \end{bmatrix}$  ?



50:50   *Final Answer ?*

A. 15      B.

C. -15      D.

**\$ 16,000 Question**

What is the determinant of  $\begin{bmatrix} -3 & 2 & 20 \\ -10 & 9 & 18 \\ 11 & 15 & 12 \end{bmatrix}$  ?



50:50   *Final Answer ?*

A. -612      B. 24

C. 1113      D. -3858

**\$ 16,000 Question**

What is the determinant of  $\begin{bmatrix} -3 & 2 & 20 \\ -10 & 9 & 18 \\ 11 & 15 & 12 \end{bmatrix}$  ?



50:50   *Final Answer ?*

A.       B. 24

C.       D. -3858

**\$ 32,000 Question**

What is the area of a triangle with vertices  
A(-3,2), B(-1,4), C(-4,3)?



50:50   Final Answer?

A. 2                      B. -2

C. 4                      D. 8

**\$ 32,000 Question**

What is the area of a triangle with vertices  
A(-3,2), B(-1,4), C(-4,3)?



50:50   Final Answer?

A. 2                      B.           

C. 4                      D.           

**\$ 64,000 Question**

Which of these is a 3 x 3 Identity matrix?



50:50   Final Answer?

A.  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$                       B.  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

C.  $\begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$                       D.  $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

**\$ 64,000 Question**

Which of these is a 3 x 3 Identity matrix?



50:50   Final Answer?

A.                                 B.  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

C.  $\begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$                       D.           

**\$ 125,000 Question**

What is the inverse of  $\begin{bmatrix} 2 & 1 & -2 \\ 5 & 3 & 0 \\ 4 & 3 & 8 \end{bmatrix}$  ?



50:50   Final Answer?

A. 2                      B.  $\begin{bmatrix} 18 & 3 & 4 \\ 0 & 3 & 5 \\ -2 & 1 & 2 \end{bmatrix}$

C.  $\begin{bmatrix} -2 & 0 & 8 \\ 1 & 3 & 3 \\ 2 & 5 & 4 \end{bmatrix}$                       D.  $\begin{bmatrix} 12 & -7 & 3 \\ -20 & 12 & -5 \\ 1.5 & -1 & .5 \end{bmatrix}$

**\$ 125,000 Question**

What is the inverse of  $\begin{bmatrix} 2 & 1 & -2 \\ 5 & 3 & 0 \\ 4 & 3 & 8 \end{bmatrix}$  ?

50:50   Final Answer?

A.                                 B.           

C.  $\begin{bmatrix} -2 & 0 & 8 \\ 1 & 3 & 3 \\ 2 & 5 & 4 \end{bmatrix}$                       D.  $\begin{bmatrix} 12 & -7 & 3 \\ -20 & 12 & -5 \\ 1.5 & -1 & .5 \end{bmatrix}$

### \$ 250,000 Question

Solve  $\begin{bmatrix} -7 & -9 \\ 4 & 5 \end{bmatrix}x + \begin{bmatrix} 3 & 4 \\ 4 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 9 \\ 6 & -6 \end{bmatrix}$

50:50



Final Answer?

A.  $\begin{bmatrix} 59 & -9 \\ -46 & 6 \end{bmatrix}$

B.  $\begin{bmatrix} 110 & -16 \\ -86 & 11 \end{bmatrix}$

C.  $\begin{bmatrix} 18 & -2 \\ -6 & 1 \end{bmatrix}$

D.  $\begin{bmatrix} 5 & 9 \\ -4 & -7 \end{bmatrix}$

### \$ 250,000 Question

Solve  $\begin{bmatrix} -7 & -9 \\ 4 & 5 \end{bmatrix}x + \begin{bmatrix} 3 & 4 \\ 4 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 9 \\ 6 & -6 \end{bmatrix}$

50:50



Final Answer?

A.

B.

C.  $\begin{bmatrix} 18 & -2 \\ -6 & 1 \end{bmatrix}$

D.  $\begin{bmatrix} 5 & 9 \\ -4 & -7 \end{bmatrix}$

### \$ 500,000 Question

Solve this system:  $2x - 7y = 6$  and  $-3x + 11y = -10$

50:50



Final Answer?

A.  $x = -4, y = -2$

B.  $x = 4, y = -2$

C.  $x = -4, y = 2$

D.  $x = 4, y = 2$

### \$ 500,000 Question

Solve this system:  $2x - 7y = 6$  and  $-3x + 11y = -10$

50:50



Final Answer?

A.  $x = -4, y = -2$

B.

C.

D.  $x = 4, y = 2$

### \$ 1 Million Question

Solve this system of equations:  
 $3x = z, x + y + z = 17, .3x + .35y + .4z = 6.25$

50:50



Final Answer?

A.  $x = 9, y = 5, z = 3$

B.  $x = 9, y = 3, z = 5$

C.  $x = 3, y = 5, z = 3$

D.  $x = 3, y = 5, z = 9$

### \$ 1 Million Question

Solve this system of equations:  
 $3x = z, x + y + z = 17, .3x + .35y + .4z = 6.25$

50:50



Final Answer?

A.  $x = 9, y = 5, z = 3$

B.

C.

D.  $x = 3, y = 5, z = 9$