Matrices

Study Development Worksheet

## Questions

1. Calculate the following:
	1. +
	2. +

Matrices

Study Development Worksheet

1. For the matrix find:
2. For the matrix find:
3. Given that for a matrix , find:

Matrices

Study Development Worksheet

1. By finding the inverse of a matrix, solve the following systems of simultaneous equations:

Matrices

Study Development Worksheet

## Answers

1. Calculate:
	1. =

Matrices

Study Development Worksheet

1. For the matrix we have:
	1. =
	2. = =
	3. Using the identity matrix method:

This gives us two systems off simultaneous equations, which we need to solve:

(1)

(2)

(2) + 7 (1) :

Therefore, , which gives us

(3)

(4)

(4) + 7 (3) :

Therefore, , which gives us .

Matrices

Study Development Worksheet

So, we have

* 1. = (
	2. =
	3. = 2 + 7 = 9

Matrices

Study Development Worksheet

1. For the matrix , we have:
	1. =
	2. Using the augmented matrix method:

Matrices

Study Development Worksheet

Therefore,

* 1. =
	2. =

Matrices

Study Development Worksheet

* 1. = 1 + 3 + 7 = 11
1. Given that for a matrix , find:
	1. = = =
	2. =
	3. = = =
	4. = = =

Matrices

Study Development Worksheet

1. By finding the inverse of a matrix, solve the following systems of simultaneous equations:

We can put these equations into the format :

We then find (using any appropriate method, this example uses the augmented matrix method):

Therefore, .

We can then rearrange to get , which gives , and so :

Matrices

Study Development Worksheet

So, the solution is ,

We find the inverse of , using the augmented matrix method:

 Matrices

Study Development Worksheet

Therefore, .

We then find

And so:

**Support**: Study Development offers workshops, short courses, 1 to 1 and small group tutorials.

* Join a tutorial or workshop on the [Study Development tutorial and workshop webpage](https://www.yorksj.ac.uk/students/study-skills/study-development-tutorials/) or search ‘YSJ study development tutorials.’
* Access our Study Success resources on the [Study Success webpage](https://www.yorksj.ac.uk/students/study-skills/study-success/) or search ‘YSJ study success.’