

Matrix.h

matrix.h

This file can be downloaded from Moodle

To use the functions in this file:

```
#include "matrix.h"
```

```
using namespace math;
```

//Define and initialize a matrix variable:

```
matrix<double> A(3,1);
```

```
A={{1},{3},{4}};
```

What about the initialization of `matrix<double> A(1,3);`?

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Matrix variable builtin functions:

A.ColNo() // Column number

A.RowNo() // Rows number

A.Null() // initialize all elements to 0

A.Unit() // initialize a identity matrix

A.SetSize(row, col) // reset the matrix to a different number of row and column

###Checking matrix types

bool IsSquare ()

bool IsSingular ()

bool IsDiagonal ()

bool IsScalar ()

bool IsUnit ()

bool IsNull ()

bool IsSymmetric ()

bool IsSkewSymmetric ()

bool IsUpperTriangular ()

bool IsLowerTriangular ()

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Matrix operators:

+, -, *, /, = as well as +=, -=, *=, /=

^ for Raising a matrix to a power

~ for transposing a matrix

! or A.Inv() for inversion

You can not delete matrix as `delete A;`

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Additional integrated functions:

A.Det() for calculating determination of a matrix

A.Norm() for quadratic normalization, or A.Norm(2)

A.NormSup() for super norm, or A.Norm(1)

A.Suma() for the sum of a matrix

A.Solve(matrix B) for solve simultaneous equation, the same as $!A * B$;