

# EXAMPLE FILE FOR M2INTEX

PAUL ZINN-JUSTIN

## 1. INTRODUCTION

some basic examples:

```
i1 : R=QQ[x,y]; factor(x^3-y^3)
o2 = (x - y) (x^2 + x y + y^2)
o2 : Expression of class Product
i3 : res coker vars R
o3 = 
$$\begin{array}{cccc} R^1 & \xleftarrow{\begin{pmatrix} x & y \end{pmatrix}} & R^2 & \xleftarrow{\begin{pmatrix} -y \\ x \end{pmatrix}} & R^1 & \xleftarrow{0} & 0 \\ 0 & & 1 & & 2 & & 3 \end{array}$$

o3 : ChainComplex
more:
i4 : 318/46
o4 =  $\frac{159}{23}$ 
o4 :  $\mathbb{Q}$ 
i5 : exp 3.73767
o5 = 42
o5 :  $\mathbb{R}$  (of precision 53)
strings:
i6 : "hehe"
o6 = hehe
and nets: TODO fix tex Net
i7 : "haha"||"hihi"
o7 =  $\begin{array}{l} \text{haha} \\ \text{hihi} \end{array}$ 
```

## 2. HELP

```
i8 : help det
o8 =
```

**determinant – determinant of a matrix**

### Synopsis

- Usage:  
det M
- Inputs:  
– M, a square matrix
- Optional inputs:

- `Strategy` => ..., default value null, choose between Bareiss and Cofactor algorithms
- Outputs:
  - a `ring element`, which is the determinant of `M`

## Description

### See also

- `exteriorPower` – exterior power
- `minors` – ideal generated by minors
- `permanents` – ideal generated by square permanents of a matrix
- `pfaffians` – ideal generated by Pfaffians

### Ways to use determinant :

- `"determinant(Matrix)"`
- `"determinant(MutableMatrix)"`

### For the programmer

The object `determinant` is a method function with options.

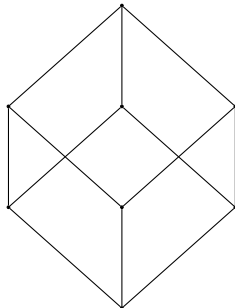
`o8 : DIV`

### 3. PACKAGES

packages that have a `tex` output will work:

`i9 : needsPackage "Posets";`

`i10 : booleanLattice 3`



`o10 =`

`o10 : Poset`

### 4. MULTI-LINE EXAMPLE

`i11 : f = i -> (`  
           `i+1`  
           `)`

`o11 = f`

`o11 : FunctionClosure`