

# Plucker Manual

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# 1 Plucker Relations

## 1.0.1 plucker

Consider  $(m+1) \times n$  matrix. The subsquare matrix consisting of  $i_1, \dots, i_m, j_k$  columns is denoted by  $p_{i_1 \dots i_m j_k}$ . The Plucker relation is

$$\sum_{k=0}^{m+1} (-1)^k p_{i_1 \dots i_m j_k} p_{j_0 \dots \hat{j}_k \dots j_{m+1}} = 0.$$

This package provides functions for Plucker relations.

## 1.0.2 plucker\_relation

`plucker_relation(L,M)`

:: Returns the plucker relation defined by the index sets  $L$  and  $M$ .

*return*      `quote`

$L$             `List`

$M$             `List`

- $L$  is the index set  $i_1, \dots, i_m$  of the plucker relations and  $M$  is the index set  $j_0, \dots, j_{m+1}$  of the plucker relations.

```
[297] A = plucker_relation([1,2],[3,4,5,6]);
quote(y_1_2_3*y_4_5_6-y_1_2_4*y_3_5_6+y_1_2_5*y_3_4_6-y_1_2_6*y_3_4_5)
[298] eval_str(print_terminal_form(A));
y_4_5_6*y_1_2_3-y_3_5_6*y_1_2_4+y_3_4_6*y_1_2_5-y_3_4_5*y_1_2_6
```

## 1.0.3 plucker\_y

`plucker_y(L)`

:: Returns the variable standing for the index  $L$ .

*return*      `Variable`

$L$             `List`

- Index set  $L$  is sorted and the sign is evaluated by the sorting.

```
[297] plucker_y([1,2,3]);
y_1_2_3
```

```
[298] plucker_y([2,1,3]);
-y_1_2_3
```

## 1.0.4 plucker\_index

`plucker_index(V)`

: It gets the index of the variable  $V$ .

Example:

```
plucker_index(plucker_y([1,2,3]));
```

# Index

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