

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]));
```

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