

Cartesian Product List Function

1

In older versions of maxima, the function

```
cartesian_product_list()
```

is not available.

We can define such a function as given below

```
→ kill(all);
(%o0) done

→ cartesian_product_listN(A, B):=block(
    return(listify(cartesian_product(setify(A), setify(B))))
);
(%o2) cartesian_product_listN(A,B):=block
      (return(listify(cartesian_product(setify(A), setify(B)))))

→ cartesian_product_listN([1, 2], [a, b]);
(%o3) [[1,a],[1,b],[2,a],[2,b]]

→ cartesian_product_listN([1, 2, 3], [a, b]);
(%o4) [[1,a],[1,b],[2,a],[2,b],[3,a],[3,b]]

→ cartesian_product_listN([1, 2, 3], [a, b, c]);
(%o5) [[1,a],[1,b],[1,c],[2,a],[2,b],[2,c],[3,a],[3,b],[
3,c]]

→ cartesian_product_listN(makelist(k, k, 1, 4), makelist(k, k, 1, 4));
(%o6) [[1,1],[1,2],[1,3],[1,4],[2,1],[2,2],[2,3],[2,4],[
3,1],[3,2],[3,3],[3,4],[4,1],[4,2],[4,3],[4,4]]
```