

Pensieve header: A (failed) permutations package for March 28, 2016.

```
BeginPackage["Permutations`"]
Permutations`

Permutation::usage =
  "Permutation[i1,i2,...] represents a permutation mapping 1->i1,2->i2,...";

Begin["`Private`"]
Permutations`Private`

Permutation /: PermutationProduct[a_Permutation] := a;
Permutation /: PermutationProduct[a_Permutation, b_Permutation] := b[[List@@a]];
(*Permutation /: PermutationProduct[a_Permutation, rest__Permutation] :=
  PermutationProduct[a,PermutationProduct@rest];*)

PermutationProduct[Permutation[1, 3, 2]]
Permutation[1, 3, 2]

PermutationProduct[Permutation[1, 3, 2], Permutation[2, 3, 1]] // Trace //
  Take[#, 40] & // FullForm

$IterationLimit::itlim: Iteration limit of 4096 exceeded. >>
```



```
PS[a_] := Select[a, # ≠ a[[#]] &]
PR[expr_, a_List] := expr /. Table[i → a[[i]], {i, a}]
PR[expr_, a_List] := expr /. Thread[a → a[[a]]]
End[]; EndPackage[]
```

---

## To do

1 + 1

2

### ? PermutationList

PermutationList[*perm*] returns a permutation list representation of permutation *perm*.

PermutationList[*perm*, *len*] returns a permutation list of length *len*. >>

### ? PermutationCycles

PermutationCycles[*perm*] gives a disjoint cycle representation of permutation *perm*. >>

### ? Permutation

Information::notfound: Symbol Permutation not found. >>

Use the head “Permutation” to represent permutations!

Use old operation names “PermutationProduct”, “InversePermutation”, “PermutationSupport”, “PermutationReplace”!

Allow mixing old and new notations!