

02 - Interfaces

Interfaces

GAP

GAP (<http://www.gap-system.org>) is included with Sage, and it can be accessed directly.

Method 1:

```
%gap
s8 := Group( (1,2), (1,2,3,4,5,6,7,8) )
      Group([ (1,2), (1,2,3,4,5,6,7,8) ])
```

```
%gap
Size(s8)
40320
```

Method 2:

In the notebook, change the interface type (4th drop-menu) from **sage** to **gap**.

```
s8 := Group( (1,2), (1,2,3,4,5,6,7,8) );
a8 := DerivedSubgroup( s8 )
      Group([ (1,2), (1,2,3,4,5,6,7,8) ])
      Group([ (1,2,3), (2,3,4), (2,4)(3,5), (2,6,4), (2,4)(5,7),
              (2,8,6,4)(3,5) ])
```

```
Size(a8)
20160
```

```
IsAbelian(a8)
false
```

```
IsPerfect(a8)
true
```

```
IsSimple(a8)
true
```

Maple

Maple is not include with Sage, but if it is installed on your computer, then you can use as above:

```
%maple
f := x -> x^2:
f(x)
x^2
```

```
%maple
D(f)(x)
2*x
```

```
maple.read('/home/saliola/Code/SF2.4v.txt')
```

```
maple.eval('withSF()')
```

Warning: new definition for conjugate [dual_basis, plethysm, Par, zee, conjugate, evalsf, skew, toe, char2sf, theta, subPar, jt_ma

```
maple.Par(4)
```

```
[[4],[3,1],[2,2],[2,1,1],[1,1,1,1]]
```

```
my_maple_function = maple('proc(x) if x > 0 then x^2 else x^3 fi end')
```

```
my_maple_function(17)
```

```
289
```

```
type(_)
```

```
<class 'sage.interfaces.maple.MapleElement'>
```

```
Integer(my_maple_function(17))
```

```
289
```

```
type(_)  
<type 'sage.rings.integer.Integer'>
```

MuPAD

```
mupad.package("MuPAD-Combinat")
```

```
S = mupad.examples.SymmetricFunctions()
```

```
S.s[2,1]^2
```

```
 $s_{2,2,1,1} + s_{2,2,2} + s_{3,1,1,1} + 2(s_{3,2,1}) + s_{3,3} + s_{4,1,1} + s_{4,2}$ 
```

```
S.omega( S.s[3] )
```

```
 $s_{1,1,1}$ 
```