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On-line help

There are actually three ways one can get on-line help while running MAGMA.

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Signature

If you know the command you want but are not sure what arguments it takes or what output(s) it gives, then you really want the command's *signature*. This is obtained most easily via `print`, e.g.

```
> print Normaliser;  
System intrinsic 'Normaliser'
```

Signatures:

```
( G, H) -> GrpPerm  
( G, H) -> GrpFP  
( G, H) -> GrpPC  
( G, H) -> GrpAb
```

The normalizer of subgroup H of the group G

```
( A, B) -> AlgCon  
( A, B, s) -> AlgCon
```

The (s-)normalizer of algebra B in A

```
>
```

From this we see that `Normaliser` can take two or three arguments. For the first four signatures we see that there are just two arguments both belonging to category `GrpPerm` or category `GrpFP` or category `GrpPC` or category `GrpAb`; for which `Normaliser` produces one output parameter of the same category as the arguments. The category, `GrpPerm` for example, is MAGMA-speak for permutation group. The complete list of category names can be found in the Appendix of the Handbook (check the Table of Contents for the page number). The signature of any `prefix` function can be found this way. Any `infix` function, like `+` and `mod`, has a prefix form (formed by (right) quoting), e.g.

```
'mod' (5,3)
```

is equivalent to

```
5 mod 3
```

and thus one gets the signature of `'mod'` by

```

> print 'mod';
System intrinsic 'mod'

Signatures:

  ( a, b) -> RngIntElt
      Remainder when a is divided by b

  ( f, g) -> RngUPolElt
  ( f, g) -> RngMPolElt
      Remainder upon division of f by g

>

```

Browser enquiry

The second way to get on-line help is to type `?` followed by the command you want to know about. This will give you a list of sections in the Handbook which are relevant to that command, each preceded by a number. Generally, `?` followed by one of these numbers gives you something very similar to what is obtained via the first method of obtaining help, e.g.

```

> ?Normaliser
2 matches:
  1  I  /magma/group/permutation/operation-subgroup/Normalizer
  2  I  /magma/group/soluble/subgroup-structure/\
      operation-subgroup/Normalizer

> ?1
=====
PATH: /magma/group/permutation/operation-subgroup/Normalizer
KIND: Intrinsic
=====
Normalizer(G, H) : GrpPerm, GrpPerm -> GrpPerm
Normaliser(G, H) : GrpPerm, GrpPerm -> GrpPerm

      Given a subgroup H of the group G, construct the normalizer of H in
      G.
=====
>

```

Browser

The third method of obtaining on-line help, is by calling up the `browser`. This is done by typing `??` on a line on its own. (Typing `?` on a line on its own gives you general information about the browser.) The third method is similar to the second method, but to quit the browser one needs to type `q` (or `quit` or `exit`). While in the browser you will notice the prompt has changed from a `>` to `??>`. The browser is set up like a UNIX directory -- commands like `cd`, `ls` etc. are available. The best way to find out how to use it is to type `??` on a line on its own and follow the instructions. Once you are familiar with how to use it, from time to time you will probably want the list of available commands -- while in the browser, this is obtained by

```
cd /browser/command
```

to get you to the right place in the tree followed by `w` an abbreviation for `walk` (all commands

can be abbreviated to some extent). Here is a sample skirmish into the browser.

```
> ??
Magma Help Browser
Type help for more information
??> cd /browser/command
??> w
=====
PATH: /browser/command
KIND: Overview
=====
Browser Commands
-----
```

Here is the list of all the commands in the Browser:

back	esearch	isearch	oback	show	up
cd	ewalk	iwalk	odelve	sback	walk
cat	find	ls	ofind	sdelve	where
delve	goto	mark	osearch	search	
exit	help	marks	owalk	sfind	
efind	ifind	more	prev	ssearch	
eback	iback	next	pwd	swalk	
edelve	idelve	numbers	quit	unmark	

You don't need to type the full command; the first command on that list of which the first input word is a substring is taken. Note that the list is not quite alphabetical, so that s means show and e means exit.

Now follows a description of each command.

[If you are in the Browser, type the single word "w" (without the quotes) followed by to view the next help screen.]

```
=====
??> q
>
```