

help **syms**

syms Short-cut for constructing symbolic variables.
syms arg1 arg2 ...
is short-hand notation for creating symbolic variables
arg1 = sym('arg1');
arg2 = sym('arg2'); ...
or, if the argument has the form f(x1,x2,...), for
creating symbolic variables
x1 = sym('x1');
x2 = sym('x2');
...
f = symfun(sym('f(x1,x2,...)'), [x1, x2, ...]);
The outputs are created in the current workspace.

syms ... ASSUMPTION
additionally puts an assumption on the variables created.

```
syms t;  
func = sin(2*pi*t)
```

func = $\sin(2\pi t)$

help **subs**

subs Symbolic substitution.
subs(S,OLD,NEW) replaces OLD with NEW in the symbolic expression S.
OLD is a symbolic variable, a string representing a variable name, or
an expression. NEW is a symbolic or numeric variable
or expression.

subs(S,VALUES), where VALUES is a STRUCT, replaces the symbolic
variables in S which are field names in VALUES by the corresponding
entries of the struct.

subs(S) replaces all the variables in the symbolic expression S with
values obtained from the calling function, or the MATLAB workspace.

subs(S,NEW) replaces the free symbolic variable in S with NEW.

```
u = -1 : 0.01 : 1
```

```
u = 1x201  
-1.0000 -0.9900 -0.9800 -0.9700 -0.9600 -0.9500 -0.9400 -0.9300 -0.9200 -0.91
```

```
subs(func,t,u)
```

```
ans =  
(0 sin( $\frac{\pi}{50}$ ) sin( $\frac{\pi}{25}$ )  $\sigma_{11}$   $\sigma_{20}$   $\sigma_{23}$   $\sigma_{19}$   $\sigma_{10}$   $\sigma_{18}$   $\sigma_9$   $\sigma_1$   $\sigma_8$   $\sigma_{17}$   $\sigma_7$   $\sigma_{16}$   $\sigma_{24}$   $\sigma_{15}$   $\sigma_6$   $\sigma_{14}$   $\sigma_5$ 
```

where

$$\sigma_1 = \frac{\sqrt{2} \sqrt{5 - \sqrt{5}}}{4}$$

$$\sigma_2 = \frac{\sqrt{2} \sqrt{\sqrt{5} + 5}}{4}$$

help **int**

--- help for **sym/int** ---

int Integrate

int Integrate

int(S) is the indefinite integral of S with respect to its symbolic variable as defined by SYMVAR. S is a SYM (matrix or scalar).

If S is a constant, the integral is with respect to 'x'.

int(S,v) is the indefinite integral of S with respect to v. v is a scalar SYM.

int(S,a,b) is the definite integral of S with respect to its symbolic variable from a to b. a and b are each double or symbolic scalars. The integration interval can also be specified using a row or a column vector with two elements, i.e., valid

```
func = sin(2*pi*t)*5
```

```
func = 5 sin(2 π t)
```

```
int(func,[0,1])
```

```
ans = 0
```

```
func = sin(2*pi*t)
```

```
func = sin(2 π t)
```

```
int(func^2,[0,1])
```

```
ans =
```

```
 $\frac{1}{2}$ 
```