

```
>> syms x y
>> SA=x+y, SB=x-y
SA =
x+y
SB =
x-y
>> F=SA^2/SB^3+x^2
F =
(x+y)^2/(x-y)^3+x^2
```

Define x and y as symbolic variables.

Create two symbolic expressions SA and SB.

$$SA = x + y$$

$$SB = x - y$$

Create a new symbolic expression F using SA and SB.

$$F = SA^2 / SB^3 + x^2 = \frac{(x+y)^2}{(x-y)^3} + x^2$$

### 11.1.3 The `findsym` Command and the Default Symbolic Variable

The `findsym` command can be used to find which symbolic variables are present in an existing symbolic expression. The format of the command is:

`findsym(S)`    or    `findsym(S,n)`

The `findsym(S)` command displays the names of all the symbolic variables (separated by commas) that are in the expression *S* in alphabetical order. The `findsym(S,n)` command displays *n* symbolic variables that are in expression *S* in the default order. For one-letter symbolic variables, the default order starts with *x*, and followed by letters, according to their closeness to *x*. If there are two letters equally close to *x*, the letter that is after *x* in alphabetical order is first (*y* before *w*, and *z* before *v*). The default symbolic variable in a symbolic expression is the first variable in the default order. The default symbolic variable in an expression *S* can be identified by typing `findsym(S,1)`. Examples:

```
>> syms x h w y d t
>> S=h*x^2+d*y^2+t*w^2
S =
t*w^2 + h*x^2 + d*y^2
>> findsym(S)
ans =
d, h, t, w, x, y
>> findsym(S,5)
ans =
x,y,w,t,h
>> findsym(S,1)
ans =
x
```

Define x, h, w, y, d, and t as symbolic variables.

Create a symbolic expression S.

Use the `findsym(S)` command.

The symbolic variables are displayed in alphabetical order.

Use the `findsym(S,n)` command (*n* = 5).

Five symbolic variables are displayed in the default order.

Use the `findsym(S,n)` command with *n* = 1.

The default symbolic variable is displayed.