```
>> syms x
>> S=x^3+4*x^2-11*x-30
S =
x^3+4*x^2-11*x-30
>> factor(S)
ans =
(x+5)*(x-3)*(x+2)
```

Define x as a symbolic variable.

Create the symbolic expression $x^3 + 4x^2 - 11x - 30$ and assign it to S.

Use the `factor` command.

MATLAB returns the expression $(x+5)(x-3)(x+2)$.

11.2.2 *The* `simplify` *Command*

The `simplify` command is a tool for simplifying the form of an expression. The `simplify` command uses mathematical operations (addition, multiplication, rules of fractions, powers, logarithms, etc.) and functional and trigonometric identities to generate a simpler form of the expression. The format of the `simplify` command is:

```
simplify(S)
```

where either S is the name of the existing expression to be simplified, or an expression to be simplified can be typed in for S.

Two examples are:

```
>> syms x y
>> S=(x^2+5*x+6)/(x+2)
S =
(x^2+5*x+6)/(x+2)
>> SA = simplify(S)
SA =
x+3
>> simplify((x+y)/(1/x+1/y))

ans =
x*y
```

Define x and y as symbolic variables.

Create the symbolic expression $(x^2 + 5x + 6) / (x + 2)$, and assign it to S.

Use the `simplify` command to simplify S.

MATLAB simplifies the expression to $x + 3$.

Simplify $(x + y) / (\frac{1}{x} + \frac{1}{y})$.

MATLAB simplifies the expression to xy).

11.2.3 *The* `pretty` *Command*

The `pretty` command displays a symbolic expression in a format resembling the mathematical format in which expressions are generally typed. The command has the form

```
pretty(S)
```

Example: