

**Example 1:** Factoring and expanding expressions

Enter an expression. Press the space bar until the entire expression is boxed. Select **Symbolics - Expand** or **Symbolics - Factor** to expand or factor the expression.

Boxing \((x + 1)(x + 4)\) and then selecting **Symbolics - Expand** yields: \(x^2 + 5x + 4\)

Boxing \(x^2 + 5x + 4\) and then selecting **Symbolics - Factor** yields: \((x + 1)(x + 4)\)

**Example 2:** Evaluating symbolic expressions

Two methods are illustrated below:

1) Using **Symbolics - Evaluate - Symbolically** from the main menu

Boxing \(\int x^2 + 4 \, dx\)

and then selecting **Symbolics - Evaluate - Symbolically** yields: \(\frac{1}{3}x^3 + 4x\)

2) Using the evaluate symbol (right arrow found on the Evaluation Palette)

\[\int x^2 + 4 \, dx \rightarrow \frac{1}{3}x^3 + 4x\]

The right arrow can be found using the Evaluation Palette or by pressing **Control + period**.

**Example 3:** Simplifying symbolic expressions

Enter an expression. Press the space bar until the entire expression is boxed. Select **Symbolics - Simplify**.

Boxing \(\frac{x}{4} + \frac{19}{20}x - \frac{27}{31}x\) and then selecting **Symbolics - Simplify** yields: \(\frac{51}{155}x\)

**Example 4:** Solving symbolic equations using a SOLVE BLOCK

There are two main differences from a regular Solve Block:
1) Do not use initial guesses.
2) Use the symbolic evaluation operator (right arrow) with the Find function.

Given

\((10 + A)x + 20y = 35\)

\(17A + 13y = 21\)

Find \((x, y) \rightarrow \begin{bmatrix}
5(68A + 7) \\
13(10 + A) \\
-17A + 21 \\
13A \\
13
\end{bmatrix}\)