Solving Equations with Absolute Value

Problems with an absolute value function have two parts. Solving an equation with an absolute value function begins by writing the two equations.

\[
6 - |23 + 11x| = 3.
\]
\[
6 - (23 + 11x) = 3. \quad 6 - [- (23 + 11x)] = 3.
\]
\[
6 - 23 - 11x \quad 6 + 23 + 11x = 3.
\]
\[
-6 \quad -6 \quad -6 \quad -6
\]
\[
-23 - 11x = -3. \quad 23 + 11x = -3.
\]
\[
+23 \quad +23 \quad -23 \quad -23
\]
\[
\]
\[
-\frac{1}{11} - 11x = -\frac{1}{11} \cdot 20. \quad \frac{1}{11} 11x = \frac{1}{11} - 26.
\]
\[
x = -\frac{20}{11}. \quad x = -\frac{26}{11}.
\]