|x| = 2

\[ x = -2 \quad \text{or} \quad x = 2 \]

8. \[ |2x - 5| = 13 \]

\[ 2x - 5 = 13 \quad \text{or} \quad 2x - 5 = -13 \]

\[ 2x = 18 \]
\[ x = 9 \]

\[ 2x = -8 \]
\[ x = -4 \]
Process:
1. Isolate the absolute value expression.
2. Get rid of the absolute value symbol by writing 2 equations.
3. Solve for the variable.

\[
|3x-4| - 3 = 11
\]

\[
|3x-4| = 14
\]

\[
3x-4 = 14 \quad \text{or} \quad 3x-4 = -14
\]

\[
3x = 18 \quad \quad 3x = -10
\]

\[
x = 6 \quad \quad x = -\frac{10}{3}
\]

\[
2|2x-5| + 5 = 11
\]

\[
2|2x-5| = 6
\]

\[
|2x-5| = 3
\]

\[
2x-5 = 3 \quad \text{or} \quad 2x-5 = -3
\]

\[
2x = 8 \quad \quad 2x = 2
\]

\[
x = 4 \quad \quad x = 1
\]
Special Cases—BEWARE!!

\[ |2x + 1| + 4 = 4 \]
\[
12x + 1 = 0 \quad \text{or} \quad 2x + 1 = -0
\]
\[ x = -\frac{1}{2} \]

\[ 2|2x - 5| + 9 = 9 \]
\[
2|2x - 5| = 0
\]
\[ 2x - 5 = 0 \]
\[ x = \frac{5}{2} \]

\[ 4|x - 1| + 7 = 3 \]
\[ 4|x - 1| = -4 \]
\[ x - 1 = -1 \quad \text{can't be negative} \]
\[ \emptyset \quad \text{no solution} \]

\[ 5 - |2x - 3| = 7 \]
\[ -5 \quad -5 \]
\[ -1|2x - 3| = 2 \]
\[ 2x - 3 = -2 \quad \text{no solution} \]

Process:

1. Isolate the absolute value expression.
2. Think about the special cases:
   a. equal to zero--only one solution
   b. equal to negative value--NO solution
   If not a special case, then proceed:
3. Remove the absolute value sign by writing as 2 equations.
4. Solve for the variable.