Example 2   *Find Absolute Value*

Evaluate the expression.

a. $|1| = \underline{1}$ If a is a positive number, then $|a| = a$.

b. $-|8.7| = -(\underline{8.7})$ If a is a positive number, then $|a| = a$.

$= \underline{-8.7}$ Use definition of ___opposites___

c. $-\left|-\dfrac{1}{9}\right| = -\left(\dfrac{1}{9}\right)$ If a is a negative number, then $|a| = -a$.

$= \underline{-\dfrac{1}{9}}$ Use definition of ___opposites___

Example 3   *Solve an Absolute Value Equation*

Use mental math to solve the equation.

a. $|x| = 2$ b. $|x| = -2$

Solution

a. Both $\underline{2}$ and $\underline{-2}$ are $\underline{2}$ ___units___ from 0, so there are ___two___ solutions: $\underline{2}$ and $\underline{-2}$.

b. Because distance is ___never___ negative, the absolute value of a number is ___never___ negative, so there is ___no solution___

✔ *Checkpoint* **Evaluate the expression.**

1. $|-10|$	2. $-|6.1|$	3. $-|-3|$	4. $|3.8|$

Use mental math to solve the equation. If there is no solution, write *no solution*.

5. $|x| = \dfrac{3}{5}$	6. $|x| = 4.9$	7. $|x| = -\dfrac{4}{11}$	8. $|x| = 5$