Solve the following absolute value equation. $\left|4x-9\right| = \left|3x+10\right|$

Since $|w| = \begin{cases} w \text{ if } w \geq 0 \\ -w \text{ if } w \leq 0 \end{cases}$, $4x-9 = \pm\left(3x+10\right)$

1. *If* $4x-9=3x+10$, *then* $x-9=10$ *and* $x=19$.

2. *If* $4x-9=-(3x+10)$, *then* $4x-9=-3x-10$, $7x=-1$, *and* $x=-\frac{1}{7}$