Solve the equation
\[ 3\sqrt{a+x} - 3\sqrt{a-x} = \sqrt{b+x} - \sqrt{b-x}, \quad (1) \]
where \( a \) and \( b \) are real parameters.

**Solution:**
The domain of the equation is \( D_x = \{ x : x \neq \pm a, \pm b \} \).
We raise both sides of (1) to power 3 and obtain
\[ \frac{a+x}{a-x} - 3\left(\frac{a+x}{a-x} - \frac{a-x}{a+x}\right) - \frac{a-x}{a+x} = \frac{b+x}{b-x} - 3\left(\frac{b+x}{b-x} - \frac{b-x}{b+x}\right) - \frac{b-x}{b+x}. \quad (2) \]
Multiplying, now, (1) by 3 and adding it to (2), we obtain
\[ \frac{a+x}{a-x} - \frac{a-x}{a+x} = \frac{b+x}{b-x} - \frac{b-x}{b+x} \]
\[ \frac{4ax}{a^2-x^2} = \frac{4bx}{b^2-x^2} \]
\[ ax (b^2-x^2) = bx (a^2-x^2) \]
\[ x (ab^2-ax^2-a^2b+bx^2) = 0 \]
\[ (b-a) x (x^2+ab) = 0. \]

Therefore we have the following cases:
**Case 1:** \( a = b \)
Then any \( x \in D_x \) is a solution.
**Case 2:** \( a \neq b \) and \( ab > 0 \)
Then \( x = 0 \) is the only solution.
**Case 3:** \( a \neq b \) and \( ab < 0 \)
Then \( x = 0 \) and \( x = \pm\sqrt{-ab} \) are the solutions.
Therefore, for the solutions of the equation we have that

- if \( a = b \), then \( x \neq a, b \)
- if \( a \neq b \) and \( ab > 0 \), then \( x = 0 \)
- if \( a \neq b \) and \( ab < 0 \), then \( x = 0 \) and \( x = \pm\sqrt{-ab} \).