Facts to Know:

Remember algebraic tricks from the past:

(Multiply by the conjugate) Remember the difference of two squares:

\[ x^2 - y^2 = \]

(“e\text{ln} trick”) Remember properties of logarithms:

\[ x = \]

Examples: Use algebraic techniques to compute the limit of \( a_n \) as \( n \to \infty \):

1. \( a_n = \sqrt{n + 1} - \sqrt{n - 1} \)
2. $a_n = \frac{n+1}{n^2+2}$

3. $a_n = \frac{1}{n} \cdot \ln n$

4. $a_n = n^{1/n}$