

## MATH 140A Review: Helpful Algebraic techniques

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### Facts to Know:

Remember algebraic tricks from the past:

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

$$x^2 - y^2 =$$

( **$e^{\ln}$  trick**) Remember properties of logarithms:

$$x =$$

**Examples:** Use algebraic techniques to compute the limit of  $a_n$  as  $n \rightarrow \infty$ :

1.  $a_n = \sqrt{n+1} - \sqrt{n-1}$

2.  $a_n = \frac{n+1}{n^2+2}$

3.  $a_n = 1/n \cdot \ln n$

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