Common Algebra Mistakes
Example: Radical Expression

The Goal

Simplify the expression:

$$\frac{1}{\sqrt{2x+1}+\sqrt{2x+1}}$$

The Mistake

Find the algebra mistake:

$$\frac{1}{\sqrt{2x+1}+\sqrt{2x+1}} = \frac{1}{2x+1}$$

Need a hint? Look carefully at the red part of the algebra:

$$\frac{1}{\sqrt{2x+1}+\sqrt{2x+1}} = \frac{1}{2x+1}$$

The Correction

$$\frac{1}{\sqrt{2x+1}+\sqrt{2x+1}} = \frac{1}{2\sqrt{2x+1}}$$

An Explanation

The equal quantities in the denominator are *added*, not *multiplied*. There are *two* such square root quantities, giving the correct simplified expression.