Problem:

Simplify $\sqrt{242}$.

Response:

To simplify \\(\\sqrt{242}\\), we can use the prime factorization method. Here are the steps: [score=0.90] ✓

1. **Prime Factorization**: First, we need to find the prime factors of 242.\n - 242 is even, so it is divisible by 2.\n   \\[\n   242 \\div 2 = 121\n   \\]\n   So, \\(242 = 2 \\times 121\\).\n - Next, we factor 121. We know that 121 is \\(11 \\times 11\\).\n   \\[\n   121 = 11 \\times 11\n   \\]\n   So, \\(242 = 2 \\times 11 \\times 11\\). [score=0.88] ✓

2. **Rewrite the Square Root**: Now, we can rewrite the square root of 242 using its prime factorization.\n   \\[\n   \\sqrt{242} = \\sqrt{2 \\times 11 \\times 11}\n   \\] [score=0.84] ✓

3. **Simplify the Square Root**: We can use the property of square roots that \\(\\sqrt{a \\times b} = \\sqrt{a} \\times \\sqrt{b}\\).\n   \\[\n   \\sqrt{242} = \\sqrt{2 \\times 11 \\times 11} = \\sqrt{2} \\times \\sqrt{11 \\times 11} = \\sqrt{2} \\times 11 = 11\\sqrt{2}\n   \\] [score=0.53] ✓

Therefore, the simplified form of \\(\\sqrt{242}\\) is \\(\\boxed{11\\sqrt{2}}\\). [score=0.46] ✓