Problem 1.

Prove or disprove the following statement.
*Statement:* Let $x$ and $y$ be two integers such that $15|x$ and $21|y$. Then $3|7x - 2y$.

Problem 2.

Prove or disprove the inequality:

\[
\frac{3n - 1}{n - 1} \geq \frac{3n + 2}{2n + 1}
\]

Problem 3.

Prove the following statement using the mathematical induction.
*Statement:*

\[
2^n + 3^n \leq 5^n \quad \forall n \in \mathbb{N}
\]