Determine when propositions are tautologies

1.1. By considering all the possible combinations of truth values, determine whether or not the compound proposition

\[ (\sim q \land (p \rightarrow q)) \rightarrow \sim p \]

is a tautology.

1.2. The proposition \( p \land (p \rightarrow q) \rightarrow q \) is called *Modus Ponens*. It means that if \( p \) is true and \( p \rightarrow q \) is true then \( q \) is true. Is the *Modus Ponens* a tautology? A contradiction? Neither? Justify your assertion.