Theorem. *(Ramsey's theorem). For any $s, t > 1$, there exists a minimum, finite number $R(s,t)$ (called Ramsey Number) such that any graph on $R(s,t)$ vertices contains either an independent set of size s or a clique of size t.*

Proof. $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ $\square$