1. Suppose that the universe of discourse is the set of integers. Using a direct proof, prove that, if is even and is even then is even.
2. Using proof by contradiction, prove that, if *n* is an integer where is odd, then *n* is even.
3. Suppose that the universe of discourse is the set of real numbers. A real number is rational if it is equal to the ratio of two integers. Let be defined to mean “*x* is a rational number.” Prove .