Problem 1: Direct proof:
Theorem: For all natural numbers, if a and b are each prime numbers greater than 2, then a + b is even.

Problem 2: Direct Proof:
Theorem: If a, b and c are natural numbers and \(a|c\) and \(b|d\) then \(ab|cd\)

Problem 3: Indirect Proof by contrapositive
Theorem: If \(n^3 + 5\) is odd then n is even for all natural numbers.

Problem 4: Indirect Proof by contradiction
Theorem: If m and n are integers and the product mn is even then m is even or n is even.

Problem 5: Prove or disprove.
Theorem: For all natural numbers, If n is odd then n is prime.