Worksheet 2: Conditional statements; divisibility

1. Decide whether the following statements are True or False; discuss why.

   (a) If 2 is even, then 3 is odd.

   (b) If a is even, then a^2 is even.

   (c) 5 is even, therefore 3 is odd.

   (d) 5 is even implies that 25 is even.

   (e) If a number a is even, then the number $2a + 3$ is odd.

   (f) For any integer a, the number $24a + 3$ is odd.

2. Find the set of all positive divisors of 60.

3. Prove that for any integer n, the number $n(n + 1)(n + 2)$ is divisible by 6.