1 By using the Euclidean algorithm find the greatest common divisor of 
(a) 7469 and 2464  
(b) 2689 and 4001.  
2 Find the g.c.d \( g \) of the numbers 1819 and 3587, then find integers \( x \) and \( y \) to satisfy  
\[ 1819x + 3587y = g \]

3 Find values of \( x \) and \( y \) to satisfy  
(c) \( 43x + 64y = 1 \)  
(d) \( 93x - 81y = 3 \)  
(e) \( 6x + 10y + 15z = 1 \)  
4 Find the least common multiple of (a) 482 and 1687, (b) 60 and 61.  
6 Prove that the product of three consecutive integers is divisible by 6; of 4 consecutive integers by 24. .  
11 Prove that 4 does not divide \( n^2 + 2 \) for any integer \( n \).  
13 Prove that \( n^2 - n \) is divisible by 2 for every integer \( n \); that \( n^3 - n \) is divisible by 6; that \( n^5 - n \) is divisible by 30.  
14 Prove that if \( n \) is odd then \( n^2 - 1 \) is divisible by 8.  
27 Find positive integers \( a \) and \( b \) such that \((a, b) = 10\) and the least common multiple of \( a \) and \( b \) is 100. Find all solutions.  
53 Show that \((n! + 1, (n + 1)! + 1) = 1\).