**MAT1830 : PRACTICE QUESTIONS ON INDUCTION**

1. Prove using induction that = (n + 3)(n - 2) for all integers n > 3.
2. Prove by induction that  to *n* terms is given by 
3. **P**rove by induction  is divisible by 16 for every positive integer *n*.
4. Prove that, if the statement  is true for *n* = *k*, where *k* is a positive integer, then it is true for *n* = *k* + 1.

Hence, find the set of values of *n* for which the statement is true.

1. The sequence of real numbers  is such that  and  for all . Prove by induction that  for all .
2. Let r0, r1, r2, …. be a recursive sequence defined by

r0 = 3; r1 = 2 and = (*18n)* + (12) for all integers n 2.

Prove using strong induction that divides for all integers n 0.

1. If the sequence ,,, ….. is defined by = 1, = 2 and + 4 = 4

Prove by induction that =

1. Prove by induction that the number of steps to complete the disk movements in the tower ofHanoi problem is – 1) for a system of n disks, for all n1