MTH202 SOLVED ASSIGNMENT ENJOY

solution:

BASIC STEP:
p(4) = 2^n
2^4 =16 < 24 = 4!

INDUCTIVE STEP:

For this step we assume that p(k) is true for posiive integer k with k>=4
Assume:
2^k < k!
2^k+1 < (k+1)!
2^k+1 = 2.2^k

< 2.k!

< (k+1)k!

= (k+1)!

So p(k+1) is true when p(k) is true.

solution of question 2:
Let a= 4566891 and b=182 . Also, let's introduce the variable "r" for the remainder
Let's evaluate a/b . It turns out that a/b = 25092 remainder 147. What we're are interested in is the remainder.
So let . Now assign the value of "b" to "a" and the value of "r" to "b".
So now **a=182 ,b=147 and r=147**

Now we must ask ourselves: "Does b=0?". Since b=147 (which is NOT zero), we must start all over and keep going until "b" equals zero.

Let's evaluate a/b . It turns out that a/b= 182/147 = 1 remainder 35. What we're are interested in is the remainder.
So let . Now assign the value of "b" to "a" and the value of "r" to "b".
So now **a=147 ,b=35 , and r=35**

Now we must ask ourselves: "Does b=0?". Since b=35 (which is NOT zero), we must start all over and keep going until "b" equals to zero

Let's evaluate a/b . It turns out that a/b= 147/35 = 4 remainder 7. What we're are interested in is the remainder.
So let . Now assign the value of "b" to "a" and the value of "r" to "b".
So now **a=35 ,b=7 , and r=7**

Now we must ask ourselves: "Does b=0?". Since b=7 (which is NOT zero), we must start all over and keep going until "b" equals zero.

Let's evaluate a/b . It turns out that a/b = 35/7 = 5 remainder 0. What we're are interested in is the remainder.

So let . Now assign the value of "b" to "a" and the value of "r" to "b".
So now **a=7 ,b=0 , and r=0**
Since the value of b is now zero, we can stop the process.
Now the value of "a" in the last row is the GCD of the numbers "a" and "b"
So this means that **GCD(4566891,182)=7.**