let n be a positive integer then, n can be odd or even.

(i) If n is odd, it is not divisible by 2.

Therefore, n can be written as $= 1 \times n = 2^0 \times n$ = Product of a non-negative power of 2 and an odd number.

(ii) If n is even, it is divisible by 2.

Then $m = n/2$ is an integer.

If m is odd, it cannot be divided by 2.

Because of $m = n/2 \Rightarrow n = 2m = 2^1 \times m$ = product of a non-negative power of 2 and an odd number.

If m is even, it is divisible by 2.

Then $p = m/2$ is an integer.

If p is odd, it cannot be divided by 2.

Because $p = m/2$ and $m = n/2$, we obtain $p = n/4$

$\Rightarrow n = 4p = 2^2 \times p$ = product of a non-negative power of 2 and an odd number.