

5. For any integer  $n$ , we can express it in one of the forms,  $3m$ ,  $3m+1$ , and  $3m+2$  for some  $m \in \mathbb{Z}$ .

If  $n$  can be expressed as  $3m$ , then  $n=3m$  is divisible by 3.

If  $n$  expressed as  $3m+1$ , then  ~~$n+3$~~   $n+2 = (3m+1)+2 = 3(m+1)$  is divisible by 3.

If  $n$  expressed as  $3m+2$ , then  $n+4 = (3m+2)+4 = 3(m+2)$  is divisible by 3.

Hence, for any integer  $n$ , at least one of the integers,  $n$ ,  $n+2$ ,  $n+4$ , is divisible by 3.