



# MATHS

## BOOKS - KALYANI MATHS (ASSAMESE ENGLISH)

### REAL NUMBERS

#### Example

1. Every integer can be expressed in the form  
of  $3p$  or  $(3p \pm 1)$



[Watch Video Solution](#)

2. Square of  $n$  integers can be expressed in the form of  $4p$  or  $(4p+1)$ .



[Watch Video Solution](#)

3. Show that any positive odd integer is of the form  $6q+1$ , or  $6q+3$ , or  $6q+5$ , where  $q$  is some integer.



[Watch Video Solution](#)

4. Prove that the product of two consecutive positive integers is divisible by 2.



[Watch Video Solution](#)

5. If  $a$  and  $b$  are two odd positive integers such that  $a > b$ . Then prove that one of the two numbers  $\frac{a + b}{2}$  and  $\frac{a - b}{2}$  is odd and other is even.



[Watch Video Solution](#)

## Exercise

1. Applying division algorithm prove that every integer can be expressed in the following form

$$(q \in \mathbb{Z}, q > 0)$$

$$4q, (4q \pm 1) \text{ or } (4q \pm 2)$$



[Watch Video Solution](#)

2. Applying division algorithm prove that every integer can be expressed in the following form

$$(q \in \mathbb{Z}, q > 0)$$

$$5q, (5q \pm 1) \text{ or } (5q \pm 2)$$



[Watch Video Solution](#)

**3.** Prove that every odd integer can be expressed in the form of  $(q \in \mathbb{Z})$

$$4q \pm 1$$



[Watch Video Solution](#)

4. Prove that every odd integer can be expressed in the form of ( $q \in \mathbb{Z}$ )

$$4q \pm 1$$



[Watch Video Solution](#)

5. If  $q$  is a positive integer, square of every integer can be expressed in the form of  $8q+1$ .



[Watch Video Solution](#)

6. Prove that an integer which can be expressed in the form of  $6k+5$  can be also expressed in the form of  $3k-1$ .



[Watch Video Solution](#)

7. Show that cube of any positive integer is either of the form  $4q$ ,  $4q+1$ ,  $4q+3$  for  $(q \in \mathbb{Z})$



[Watch Video Solution](#)

8. Show that any positive even integer is of the form  $6q$ ,  $6q+2$ ,  $6q+4$ .



[Watch Video Solution](#)

9. If  $(n \in \mathbb{N})$  then applying division algorithm prove that each of the following is an integer

$$\frac{n(3n + 1)}{2}$$



[Watch Video Solution](#)



**10.** If  $(n \in \mathbb{N})$  then applying division algorithm prove that each of the following is an integer

$$\frac{n(4n^2 - 1)}{3}$$



**Watch Video Solution**

**11.** If  $(n \in \mathbb{N})$  then applying division algorithm prove that each of the following is an integer

$$\frac{n^3 - n}{3}$$



**Watch Video Solution**

12. If  $(n \in \mathbb{N})$  then applying division algorithm prove that each of the following is an integer

$$\frac{n^3 + 3n^2 + 2n}{6}$$



**Watch Video Solution**