Class X Mathematics
Chapter 1 Real Number

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

Solution:
Let there is any positive integer
a = 6q+r. where q is some integer and r is the remainder which is smaller than divisor 6.
Therefore 0≤ r <6 i.e. r=0 or 1 or 2 or 3 or 4 or 5.
According to the question and by the Euclid'sdivision lemma possible values for a = 6q +r where r is the positive odd integer.
So r = 1, 3, and 5
or a = 6q +1, when r = 1
or a = 6q+3, when r = 3
or a = 6q+5, when r = 5
Therefore any positive odd integer is of the form 6q +1 or 6q + 3, or 6q+5, where q is some integer.

2. Use Euclid's division algorithm to find the HCF of:
i.135 and 225
ii.196 and 38220

Solutioni:
I.135 and 225
Here 225 > 135
Therefore by using Euclid's division algorithm to 135 and 225
Divide 225 by 135
225 = 135 x 1 + 90 ,remainder is 90.
Now divide the divisor 135 by remainder 90
135 = 90 x 1 + 45, remainder is 45
Divide the new divisor 90 by 45
90 = 45 ×2 + 0
Remainder is zero when the last divisor is 45.
Therefore HCF of 135 and 225 is 45.

ii. 196 and 38220
Here 38220 > 196
Therefore by using Euclid's division algorithm to 196 and 38220
Divide 38220 by 196
38220 = 196 ×195 + 0
Remainder is zero when the divisor is equal to 196.
Therefore HCF of 196 and 38220 is 196.