

## TEXT BOOK EXERCISE 6.2

**Q. 1.** Express the following numbers as the sum of consecutive odd natural numbers.

- (i)  $7^3$       (ii)  $8^3$       (iii)  $9^3$ .

**Solution.**

- (i)  $7^3 = 43 + 45 + 47 + 49 + 51 + 53 + 55$   
 (ii)  $8^3 = 57 + 59 + 61 + 63 + 65 + 67 + 69 + 71$   
 (iii)  $9^3 = 73 + 75 + 77 + 79 + 81 + 83 + 85 + 87 + 89$ .

**Q. 2.** Find the value of following by using suitable pattern ?

- (i)  $12^3 - 11^3$     (ii)  $20^3 - 19^3$     (iii)  $51^3 - 50^3$ .

**Solution.**

- (i)  $12^3 - 11^3 = 1 + 12 \times 11 \times 3 = 397$   
 (ii)  $20^3 - 19^3 = 1 + 20 \times 19 \times 3 = 1141$   
 (iii)  $51^3 - 50^3 = 1 + 51 \times 50 \times 3 = 7651$

**Q. 3.** Which of the following are perfect cubes ?

- (i) 225    (ii) 10648    (iii) 1125    (iv) 2744.

**Solution.** (i) Let us find prime factorisation of 225.

3	225
3	75
5	25
5	5
	1

Prime factorisation of 225 is :

$$225 = 3 \times 3 \times 5 \times 5$$

As prime factorisation of 225 cannot be grouped in triplets

Hence, it is not a perfect cube. **Ans.**

(ii) Let us find prime factorisation of 10648.

2	10648
2	5324
2	2662
11	1331
11	121
11	11
	1

Prime factorisation of 10648 is :

$$10648 = \underline{2 \times 2 \times 2} \times \underline{11 \times 11 \times 11}$$

As prime factorisation of 10648 can be grouped in triplets

Hence, it is a perfect cube. **Ans.**

(iii) Let us find prime factorisation of 1125.

3	1125
3	375
5	125
5	25
5	5
	1

Prime factorisation of 1125 is :

$$1125 = 3 \times 3 \times 5 \times 5 \times 5$$

As prime factorisation of 1125 cannot be grouped in triplets

Hence, it is not a perfect cube. **Ans.**

(iv) Let us find prime factorisation of 2744.

2	2744
2	1372
2	686
7	343
7	49
7	7
	1

Prime factorisation of 2744 is :

$$2744 = \underline{2 \times 2 \times 2} \times \underline{7 \times 7 \times 7}$$

As prime factorisation of 2744 can be grouped in triples

Hence, it is a perfect cube. **Ans.**