NCERT SOLUTIONS CLASS-8 MATHS CHAPTER-7 EXERCISE-7.1

Q1:

Mention the numbers that are not perfect cubes.

(A) 216

(B) 128

(C) 1000

(D) 100

(E) 46656

Solution:

(A) 216

Prime factors of 216: 2x2x2x3x3x3

Here all the factors are in the groups of 3's

Therefore, 216 is said to be a perfect cube number.

02	0216
02	0108
02	054
03	027
03	09
03	03
	01

(B) 128

The prime factor of 128 = 2x2x2x2x2x2x2

Here one factor 2 does not appear in groups of 3

Hence, 128 is not a perfect cube.

02	0128
02	064
02	032
02	016
02	08
02	04
02	02
	01

(C) 1000

The prime factors of 1000 = 2x2x2x 5x5x5

Here all the factors are in groups of 3

Hence, 1000 is said to be a perfect cube.

02	01000
02	0500
02	0250
05	0125
05	025
05	05
	01

(D) 100

The prime factors of 100 is 2×2 x 5×5

Here all the factors do not appear in groups of 3.

Hence, 100 is not a perfect cube.

02	0100
02	050
05	025
05	05
	01

(E) 46656

The prime factors of 46656 = 2x2x2x2x2x2x 3 x3x3x3x3x 3

Here all the factors are in groups of 3

Hence, 46656 is said to be a perfect cube.

02	046656
02	023328
02	011664
02	05832
02	02916
02	01458
03	0729
03	0243
03	081
03	027
03	09
03	03
	01

Q2 :

Find the smallest number when multiplied to obtain a perfect cube:

(A) 243

(B) 256

(C) 72

(D) 675

(E) 100

Solution:

(A) 243

The prime factors of 243 = 3x3x3x3x 3

Here 3 does not appear in groups of 3

Hence, For 243 to be a perfect cube it should be multiplied by 3.

03	0243
03	081
03	027
03	09
03	03
	01

(B) 256

The prime factors of 256 is 2x2x2x2x2x 2 x2 x 2

Here one factor of 2 is required for it to make groups of 3.

Hence, for 256 to be a perfect cube it should be multiplied by 2.

02	0256
02	0128
02	064
02	032
02	016
02	08
02	04
02	02
	01

(C) 72

The prime factors for 72 = 2 x2x2x 3x 3

Here the factor 3 does not appear in groups of 3

Hence, For 72 to be a perfect cube it should be multiplied by 3.

(D) 675

The prime factors for 675 = 3x3x3x 5×5

Here the factor 5 does not appear in groups of 3

Hence, for 675 to be a perfect cube it should be multiplied by 5.

03	0675
03	0225
03	075
05	025
05	05
	01

(E) 100

The prime factors for 100 = 2x2x5x5

Here both the factors 2 and 5 are not in groups of 3

Hence, for 100 to be a perfect cube it should be multiplied by 2 and 5. (i.e. 2 x 5 =10)

02	0100
02	050
05	025
05	05
	01

Q3:

Find the smallest number by which when divided obtain a perfect cube.

(A) 81

(B) 128

(C) 135

(D) 192

(E) 704

Solution:

(A) 81

The prime factors for 81 = 3 x 3 x 3 x 3

Here, there is one factor of 3 which extra from the group of 3

Hence, for 81 to be a perfect cube it should be divided by 3.

03	081
03	027
03	09
03	03
	01

(B) 128

The prime factors of 128 = 2 x 2 x 2 x 2 x 2 x 2 x 2

Here there is one factor of 2 which in not in the group of 3

Hence, for 128 to be a perfect cube then it should be divided by 2.

02	0128
02	064
02	032
02	016
02	08
02	04
02	02
	01

(C) 135

The prime factors of 135 = 3 x 3 x 3 x 5

Here there is one factor of 5 which is not appearing with its group of 3.

Hence, for 135 to be a perfect cube it should be divided by 5.

03	0135
03	045
03	15
05	05
	01

(D)192

The prime factors for 192 = 2 x 2 x 2 x 2 x 2 x 2 x 3

Here there is one factor of 3 which does not appearing with its group of 3.

Hence for 192 to be a perfect cube then it should be divided by 3.

02	0192
02	096
02	048
02	024
02	012
02	06
03	03
	01

(E) 704

The prime factor for 704 = 2 x 2 x 2 x 2 x 2 x 2 x 11

Here there is one factor of 11 which is not appearing with its group of 3.

Hence for 704 to be a perfect cube it should be divided by 11.

02	0704
02	0352

02	0352
02	0176
02	088
02	044
02	022
02	011
	01

Q4:

Reuben makes a cuboid of clay of sides 5 cm , 2 cm , 5 cm. If Reuben wants to form a cube how many such cuboids will be needed?

Solution:

The numbers given: 5 x 2 x 5

Since the factors of 2 and 4 are both not in groups of 3.

Then, the number should be multiplied by 2 x 2 x 5 = 20 for it to be made a perfect cube.

Hence Reuben needs 20 cuboids.