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MATHS ASSIGNMENT – CUBE & CUBE ROOTS.

1) i) 3391 – 1
ii) 8888 – 2
iii) 149 – 9
iv) 1005 – 5
v) 1024 – 4
vi) 77 – 3
vii) 5022 – 8
viii) 59 – 7

2) a) 6^3 – n = 6, (n-1) = 5.
= (6×5)+1 = 31.....
6^3 = 31+33+35+37+39+41 = 216

b) 8^3 = n = 8, (n-1) = 7
= (8×7)+1 = 57.....
8^3 = 57+59+61+63+65+67+69+71 = 512

c) 7^3 = n = 7, (n-1) = 6.
= (7×6)+1 = 43....
7^3 = 43+45+47+49+51+53+55 = 343

3) Cube of $20 = (20)^3 = 20 \times 20 \times 20 = 8000$

Cube of $25 = (25)^3 = 25 \times 25 \times 25 = 15625$

Cube of $19 = (19)^3 = 19 \times 19 \times 19 = 6859$

Cube of $15 = (15)^3 = 15 \times 15 \times 15 = 3375$

So option 2, 3, 4 & 5 are perfect cubes.

4) Prime factorising 392,

$= 2 \times 2 \times 2 \times 7 \times 7$

$= 2^3 \times 7^2$.

Here, number of 2's is 3 and number of 7's is 2. Therefore 392 is not a perfect cube, we need to multiply another 7 to the factorization to make 392 a perfect cube.

5) Prime factorising,

$53240 = 5 \times 2^3 \times 11^3$

As a perfect cube has multiples of 3 as powers of prime factors. The prime factor 5 does not appear in triplet form. Hence, 53240 is not a perfect cube.

So we must divide the number 53240 by 5 then the quotient is a perfect cube.

$53240 \div 5 = \underline{10648}$

$10648 = 22 \times 22 \times 22 = 22^3$, which is a perfect cube

6) Prime factorising 1188.

$1188 = 2 \times 2 \times 3 \times 3 \times 3 \times 11$

$= 2^2 \times 3^3 \times 11$

Here, we need to divide 2^2 and 11 from the factorization to make 1188 a perfect cube. Hence, the smallest number by which 1188, must be divided to obtain a perfect cube is $2^2 \times 11 = \underline{44}$.

7) Prime factorising 68600.

$= 2 \times 2 \times 2 \times 5 \times 5 \times 7 \times 7 \times 7$

$= 2^3 \times 5^2 \times 7^3$

So, here we need to multiply another 5 in the factorization to make it 68600 a perfect cube