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Exercise-4(A)

① find the cube of

i) 7
⇒ $7^3 = 7 \times 7 \times 7 = 343$

ii) 11
⇒ $11^3 = 11 \times 11 \times 11 = 1331$

iii) 16
⇒ $16^3 = 16 \times 16 \times 16 = 4096$

iv) 23
⇒ $23^3 = 23 \times 23 \times 23 = 12,167$

v) 31
⇒ $31^3 = 31 \times 31 \times 31 = 29,791$

vi) 42
⇒ $42^3 = 42 \times 42 \times 42 = 74,088$

vii) 54
⇒ $54^3 = 54 \times 54 \times 54 = 157,464$.

② find which of the following are perfect cubes?

i) 243
⇒ $3 \times 3, \times 3 \times 3 \times 3$ (Not)
here the pm 3 is not triplet

ii) $388 = 2 \times 2 \times 3 \times 7 \times 7$ (Not)
Here the pm 2 and 3, 7 are not in triplet.
Hence 388 is not a perfect cube

2	388
2	194
7	97
	13
	1

iii) 1331

11	1331
11	121
	11

⇒ $1331 = 11 \times 11 \times 11$
here prime factors 11 is a perfect cube.

iv) 24000
⇒ $2\times2\times2 \times 2\times2\times2 \times 3 \times 5\times5\times5$ (Not)
here prime no 3 are not in triplets. hence 24000 is not a perfect cube

v) 1728 =
⇒ $2\times2\times2 \times 2\times2\times2 \times 3\times3\times3$ (yes)
here prime factor 2, 3 is a perfect cube.

vi) 1938
⇒ $2\times3\times17\times19$ (Not)
here 2, 3, 17, 19 are not in triplets. hence 1938 is not a perfect cube.

(3) Find the cubes of.
i) 2.1
⇒ $(2.1)^3 = 2.1\times2.1\times2.1 = 9.261$.

ii) 0.4
⇒ $(0.4)^3 = 0.4\times0.4\times0.4 = 0.064$

iii) 1.6
⇒ $(1.6)^3 = 1.6\times1.6\times1.6 = 4.096$

iv) 2.5
⇒ $(2.5)^3 = 2.5\times2.5\times2.5 = 15.625$.

v) 0.12
⇒ $(0.12)^3 = 0.12 \times 0.12 \times 0.12 = 0.001728$

vi) 0.02
⇒ $(0.02)^3 = 0.02 \times 0.02 \times 0.02 = 0.000008$

vii) 0.08
⇒ $(0.08)^3 = 0.8 \times 0.8 \times 0.8 = 0.512$.

(a) find the cubes of

i) $\frac{3}{7}$
the cube of
⇒ $\left(\frac{3}{7}\right)^3 = \frac{3}{7} \times \frac{3}{7} \times \frac{3}{7} = \frac{3^3}{7^3} = \frac{27}{343}$

ii) $\frac{8}{9}$
the cube of
⇒ $\left(\frac{8}{9}\right)^3 = \frac{8}{9} \times \frac{8}{9} \times \frac{8}{9} = \frac{512}{729}$

iii) $\frac{10}{13}$
the cube of
⇒ $\left(\frac{10}{13}\right)^3 = \frac{10}{13} \times \frac{10}{13} \times \frac{10}{13} = \frac{1000}{2197}$

iv) $\frac{9}{7}$
the cube of
⇒ $1\frac{3}{7} = \left(\frac{9}{7}\right)^3 = \left(\frac{9}{7}\right)^3 = \frac{729}{343} = 2\frac{43}{343}$

v) $2\frac{1}{2}$
⇒ The cube of $\left(2\frac{1}{2}\right)^3 = \left(\frac{5}{2}\right)^3 = \frac{5^3}{2^3} = \frac{125}{8}$.

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(5) find the cubes of.

i) the cube of $-3 = (-3)^3 = (-3)\times(-3)\times(-3) = -27$

ii) the cube of $-7 = (-7)^3 = (-7)\times(-7)\times(-7) = -343$

iii) the cube of $-12 = (-12)^3 = (-12)\times(-12)\times(-12) = -1728$

iv) the cube of $-18 = (-18)^3 = (-18)\times(-18)\times(-18) = -5832$

v) the cube of $-25 = (-25)^3 = (-25)\times(-25)\times(-25) = -15625$

vi) the cube of $-30 = (-30)^3 = (-30)\times(-30)\times(-30) = -27000$

vii) the cube of $-50 = (-50)^3 = (-50)\times(-50)\times(-50)$
$= -125,000.$

(6) Which of the following are cube of.

i) the cube of even no is even
ii) the cube of odd no is odd

$\therefore 216 = 2\times2\times2\times3\times3\times3$
$= (2\times3)\times(2\times3)\times(2\times3)$
$= 6\times6\times6$
$= 6^3$
an even no.

$\therefore 729 = 3\times3\times3\times3\times3\times3$
$= (3\times3)\times(3\times3)\times(3\times3)$
$= 9\times9\times9$
$= 9^3$
= an odd no.

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3375 = 3×3×3×5×5×5
= (3×5)×(3×5)×(3×5)
= 15×15×15
= 15^3
⇒ in odd no.

8000 = 2×2×2×2×2×2×5×5×5.
= (2×2×5)×(2×2×5)×(2×2×5)
= 20×20×20
= 20^3 (even)
= e

125 = 5×5×5
= 5^3 = (odd)

343 = 7×7×7
= 7^3 = (odd)

4096 = (2×2×2×2)×(2×2×2×2)×(2×2×2×2)
= (2×2×2×2)×(2×2×2×2)×(2×2×2×2)×(2×2
= 8×8×8×8.
= 16×16×16 = 16^3
= even

9261 = 3×3×3×7×7×7
= (3×7)×(3×7)×(3×7)
= 21×21×21
= 21^3 = odd.

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7) $1323 = 3 \times 3 \times 3 \times 7 \times 7$ $\sqrt{1323}$

here pn 7 is not in triplet.
therefore 7 is the least no by which 1323 must be multipled so, that the product is perfect cube.

8) 8768

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 137$

2	8768
2	4384
2	2192
2	1096
2	548
2	274
	137

here 137 is not in triplet therefore 137.
this smallest no 137
by which 8768 must be ~~ravided~~ divided.
so, that the quotient is a perfect cube