Exercise 4C

Q1

Answer :

$\sqrt[3]{64}$

By prime factorisation:

$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

$= (2 \times 2 \times 2) \times (2 \times 2 \times 2)$

$\therefore \sqrt[3]{64} = \sqrt[3]{(2)^3 \times (2)^3} = (2 \times 2) = 4$

Q2

Answer :

$\sqrt[3]{343}$

By prime factorisation:

$343 = 7 \times 7 \times 7$

$= (7 \times 7 \times 7)$

$\therefore \sqrt[3]{343} = \sqrt[3]{7^3} = 7$

Q3

Answer :

$\sqrt[3]{729}$

By prime factorisation:

3	729
3	243

3	243
3	81
3	27
3	9
3	3
	1

$729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$

$= (3 \times 3 \times 3) \times (3 \times 3 \times 3)$

$\therefore \sqrt[3]{729} = (3 \times 3) = 9$

Q4

Answer :

$\sqrt[3]{1728}$

By prime factorisation:

2	1728
2	864
2	432
2	216
2	108
2	54
3	27
3	9
3	3
	1

$1728 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$

$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (3 \times 3 \times 3) = 2^3 \times 2^3 \times 3^3$

$\therefore \sqrt[3]{1728} = (2 \times 2 \times 3) = 12$

Q5

Answer :

$\sqrt[3]{9261}$

By prime factorisation:

3	9261
3	3087
3	1029
7	343
7	49
7	7
	1

$9261 = 3 \times 3 \times 3 \times 7 \times 7 \times 7$

$= (3 \times 3 \times 3) \times (7 \times 7 \times 7) = 3^3 \times 7^3$

$\therefore \sqrt[3]{9261} = (3 \times 7) = 21$

Q6

Answer :

$\sqrt[3]{4096}$

By prime factorisation:

2	4096
2	2048
2	1024
2	512
2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

$4096 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2)$

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

$\therefore \sqrt[3]{4096} = (2 \times 2 \times 2 \times 2) = 16$

Q7

Answer :

$\sqrt[3]{8000}$

By prime factorisation:

2	8000
2	4000
2	2000
2	1000
2	500
2	250
5	125
5	25
5	5
	1

$8000 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5$

$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5)$

$\therefore \sqrt[3]{8000} = (2 \times 2 \times 5) = 20$

Q8

Answer :

$\sqrt[3]{3375}$

By prime factorisation:

5	3375
5	675
5	135
3	27
3	9
3	3
	1

$3375 = 3 \times 3 \times 3 \times 5 \times 5 \times 5$

$= (3 \times 3 \times 3) \times (5 \times 5 \times 5)$

$\therefore \sqrt[3]{3375} = (3 \times 5) = 15$

Q9

Answer :

$\sqrt[3]{-216}$

By prime factorisation:

********** END **********