

Exercise 4C

Q1

Answer:

 $\sqrt[3]{64}$

By prime factorisation:

$$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$
$$= (2 \times 2 \times 2) \times (2 \times 2 \times 2)$$

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

Q2

Answer:

 $\sqrt[3]{343}$

By prime factorisation:

$$343 = 7 \times 7 \times 7$$
$$= (7 \times 7 \times 7)$$

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

Q3

Answer:

√³/729

By prime factorisation:

3 729

$$729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$$
$$= (3 \times 3 \times 3) \times (3 \times 3 \times 3)$$

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

Q4

Answer:

 $\sqrt[3]{1728}$

By prime factorisation:

$$\begin{array}{l} \textbf{1728} = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ = (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (3 \times 3 \times 3) = 2^3 \times 2^3 \times 3^3 \end{array}$$

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

Q5

Answer:

 $\sqrt[3]{9261}$

By prime factorisation:

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

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

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

Q6

Answer:

 $\sqrt[3]{4096}$

By prime factorisation:

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

Answer:

³/8000

By prime factorisation:

- 2 8000
- 2 4000

- 2 2000 2 1000 2 500 2 250 5 125 5 25

$$8000 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5$$
$$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5)$$

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

Q8

Answer:

 $\sqrt[3]{3375}$

By prime factorisation:

- 5 3375

- 5 675 5 135 3 27 3 9 3 3

$$3375 = 3 \times 3 \times 3 \times 5 \times 5 \times 5$$
$$= (3 \times 3 \times 3) \times (5 \times 5 \times 5)$$

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

Q9

Answer:

$$\sqrt[3]{-216}$$

By prime factorisation:

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