

Cubes and Cubes Roots Ex 4.3 Q4

Answer:

(i)

Cube root using units digit:

Let us consider 343.

The unit digit is 3; therefore, the unit digit in the cube root of 343 is 7.

There is no number left after striking out the units, tens and hundreds digits of the given number; therefore, the cube root of 343 is 7.

Hence, $\sqrt[3]{343} = 7$

(iii

Cube root using units digit:

Let us consider 2744.

The unit digit is 4; therefore, the unit digit in the cube root of 2744 is 4.

After striking out the units, tens and hundreds digits of the given number, we are left with 2.

Now, 1 is the largest number whose cube is less than or equal to 2.

Therefore, the tens digit of the cube root of 2744 is 1.

Hence, $\sqrt[3]{2744} = 14$

(iii)

Cube root using units digit.

Let us consider 4913.

The unit digit is 3; therefore, the unit digit in the cube root of 4913 is 7.

After striking out the units, tens and hundreds digits of the given number, we are left with 4.

Now, 1 is the largest number whose cube is less than or equal to 4.

Therefore, the tens digit of the cube root of 4913 is 1.

Hence, $\sqrt[3]{4913} = 17$

(iv)

Cube root using units digit:

Let us consider 1728.

The unit digit is 8; therefore, the unit digit in the cube root of 1728 is 2.

After striking out the units, tens and hundreds digits of the given number, we are left with 1.

Now, 1 is the largest number whose cube is less than or equal to 1.

Therefore, the tens digit of the cube root of 1728 is 1.

Hence, $\sqrt[3]{1728} = 12$

(V

Cube root using units digit:

Let us consider 35937.

The unit digit is 7; therefore, the unit digit in the cube root of 35937 is 3.

After striking out the units, tens and hundreds digits of the given number, we are left with 35.

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Now, 3 is the largest number whose cube is less than or equal to 35 ( 3^3 < 35 < 4^3 ).
Therefore, the tens digit of the cube root of 35937 is 3.
Hence, \sqrt[3]{35937} = 33
(vi)
Cube root using units digit:
Let us consider the number 17576.
The unit digit is 6; therefore, the unit digit in the cube root of 17576 is 6.
After striking out the units, tens and hundreds digits of the given number, we are left with 17.
Now, 2 is the largest number whose cube is less than or equal to 17 (2^3 < 17 < 3^3).
Therefore, the tens digit of the cube root of 17576 is 2.
Hence, \sqrt[3]{17576} = 26
(vii)
Cube root by factors:
On factorising 134217728 into prime factors, we get:
\times 2 \times 2
On grouping the factors in triples of equal factors, we get:
134217728 = \left\{2\times2\times2\right\}\times\left\{2\times2\times2\right\}\times\left\{2\times2\times2\right\}\times\left\{2\times2\times2\right\}\times\left\{2\times2\times2\right\}
\times \left\{2 \times 2 \times 2\right\} \times \left\{2 \times 2 \times 2\right\} \times \left\{2 \times 2 \times 2\right\} \times \left\{2 \times 2 \times 2\right\}
Now, taking one factor from each triple, we get:
(Viii)
Cube root by factors:
On factorising 48228544 into prime factors, we get:
48228544 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 7 \times 13 \times 13 \times 13
On grouping the factors in triples of equal factors, we get:
48228544 = \{2 \times 2 \times 2\} \times \{2 \times 2 \times 2\} \times \{7 \times 7 \times 7\} \times \{13 \times 13 \times 13\}
Now, taking one factor from each triple, we get:
\sqrt[3]{48228544} = 2 \times 2 \times 7 \times 13 = 364
(ix)
Cube root by factors:
On factorising 74088000 into prime factors, we get:
On grouping the factors in triples of equal factors, we get:
74088000 = \left\{2\times2\times2\right\}\times\left\{2\times2\times2\right\}\times\left\{3\times3\times3\right\}\times\left\{5\times5\times5\right\}\times\left\{7\times7\times7\right\}
Now, taking one factor from each triple, we get:
\sqrt[3]{74088000} = 2 \times 2 \times 3 \times 5 \times 7 = 420
(X)
Cube root using units digit:
Let is consider 157464.
The unit digit is 4; therefore, the unit digit in the cube root of 157464 is 4.
After striking out the units, tens and hundreds digits of the given number, we are left with 157.
Now, 5 is the largest number whose cube is less than or equal to 157 (5^3 < 157 < 6^3).
Therefore, the tens digit of the cube root 157464 is 5.
Hence, \sqrt[3]{157464} = 54
(Xi)
Cube root by factors:
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