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CUBES AND CUBE ROOTS

TEXT BOOK EXERCISE 6.1

Q. 1. What should be the ones digit of the cube of the each of the following numbers tell without actual calculation ?

- (i) 231 (ii) 4584 (iii) 6259
(iv) 105 (v) 17 (vi) 120.

Solution. As we observe that, the ones digit of the cube of number :

- (i) 231 will be 1 (ii) 4584 will be 4

- (iii) 6259 will be 9 (iv) 105 will be 5
(v) 17 will be 3 (vi) 120 will be 0.

Q. 2. Find the cube of following numbers.

- (i) - 9 (ii) 16 (iii) - 14
(iv) $\frac{1}{13}$ (v) $\frac{8}{7}$ (vi) 2.4
(vii) 0.002 (viii) 9.9 (ix) 1.01.

Solution.

(i) Cube of $(-9) = (-9)^3$
 $= (-9) \times (-9) \times (-9)$
 $= -729$ Ans.

(ii) Cube of $16 = (16)^3$
 $= 16 \times 16 \times 16 = 4096$

Ans.

(iii) Cube of $(-14) = (-14)^3$
 $= (-14) \times (-14) \times (-14)$
 $= -2744$ Ans.

(iv) Cube of $\frac{1}{13} = \left(\frac{1}{13}\right)^3$
 $= \frac{1}{13} \times \frac{1}{13} \times \frac{1}{13} = \frac{1}{2197}$

Ans.

(v) Cube $\frac{8}{7} = \left(\frac{8}{7}\right)^3 = \frac{8}{7} \times \frac{8}{7} \times \frac{8}{7}$
 $= \frac{512}{343}$ Ans.

(vi) Cube of $2.4 = (2.4)^3$
 $= 2.4 \times 2.4 \times 2.4$
 $= 13.824$ Ans.

(vii) Cube of $0.002 = (0.002)^3$
 $= 0.000000008$ Ans.

(viii) Cube of $9.9 = (9.9)^3 = 9.9 \times 9.9 \times 9.9$
 $= 970.299$ Ans.

(ix) Cube of $1.01 = (1.01)^3$
 $= 1.01 \times 1.01 \times 1.01$
 $= 1.030301$ Ans.

Q. 3. Find volume of cube having side :

- (i) 4 cm (ii) 15 cm (iii) 17 cm
(iv) 2.3 cm (v) 7.2 m.

Solution.

(i) Here, side of cube = 4 cm
As volume of cube = $(\text{side})^3$
So, volume of cube = $(4 \text{ cm})^3$
 $= 64 \text{ cm}^3$ Ans.

(ii) Here, side of cube = 15 cm
As volume of cube = $(\text{side})^3$
So, volume of cube = $(15 \text{ cm})^3$
 $= 3375 \text{ cm}^3$ Ans.

(iii) Here, side of cube = 17 cm
As volume of cube = $(\text{side})^3$
So, volume of cube = $(17 \text{ cm})^3$
 $= 4913 \text{ cm}^3$ Ans.

(iv) Here, side of cube = 2.3 cm
As volume of cube = $(\text{side})^3$
So, volume of cube = $(2.3 \text{ cm})^3$
 $= 12.167 \text{ cm}^3$ Ans.

(v) Here, side of cube = 7.2 m
As volume of cube = $(\text{side})^3$
So, volume of cube = $(7.2 \text{ m})^3$
 $= 373.248 \text{ m}^3$ Ans.

Q. 4. Multiple Choice Questions :

- (i) Ones digit of cube of 7 is :
(a) 7 (b) 3
(c) 5 (d) 6.
- (ii) Ones digit of cube of a number having 2 at ones place is :
(a) 2 (b) 4
(c) 6 (d) 8.
- (iii) Volume of a cube of side 5 cm is :
(a) 15 cm (b) 125 cm^3
(c) 45 cm^3 (d) 50 cm.
- (iv) Ones digit of 1823^3 is :
(a) 3 (b) 9
(c) 7 (d) 6.
- (v) How many cubes of side 1 cm will form a cube of side 2 cm ?
(a) 2 (b) 4
(c) 6 (d) 8.
- (vi) What is ones place digit in 626^3 .
(a) 2 (b) 3
(c) 4 (d) 6.

Ans.

- (i) (b) 3, (ii) (d) 8, (iii) (b) 125 cm^3
(iv) (c) 7, (v) (d) 8, (vi) (d) 6.