

Squares and Square Roots

Q1) Choose the correct answer: (1 Mark)

If a number ends with 1 or 9, its square ends with digit ----.

- a) 1
- b) 9
- c) 3
- d) None of the above

Q2) Choose the correct answer: (1 Mark)

The square of an even number is always an even number.

- a) 1
- b) 0

Q3) Choose the correct answer: (1 Mark)

How many non- square numbers are there between 11^2 and 12^2

- a) 25
- b) 20
- c) 23
- d) 21

Q4) Choose the correct answer: (1 Mark)

Square root of 4.5369 is

- a) 2.3
- b) 2.23
- c) 2.13
- d) 2.03

- Q5)** Choose the correct answer: (1 Mark)
- If a number ends with 0, its square ends with ----.
- a) 2
 - b) Any even no.
 - c) 0
 - d) 1 Only
- Q6)** Fill in the blank: (1 Mark)
- Square of 103 is -----.
- Q7)** Fill in the blank: (1 Mark)
- Square root of 121 is-----.
- Q8)** Fill in the blanks: (1 Mark)
- $67^2 = \underline{\hspace{2cm}}$.
- Q9)** Fill in the blank: (1 Mark)
- One digit in the square of 13 is-----.
- Q10)** Find the square root by the factor method of 40000. (3 Marks)
- Q11)** Divide the number 52728 by the smallest number so that the quotient is a perfect cube. (3 Marks)
Also, find the cube root of the quotient.
- Q12)** Check by prime factorisation method whether 25200 is a perfect square or not. (3 Marks)
- Q13)** Find the square root of 150.0625. (3 Marks)

Q14) Construct a rhombus whose diagonals are 9.6 cm and 7.2 cm. (3 Marks)

Q15) Find the square root of 237.615 correct to two decimal places. (3 Marks)

Q16) Find the square root of 9216 by the factor method. (3 Marks)



Answers

Q1) 1

Q2) 1

Q3) 23

Q4) 2.13

Q5) 0

Q6) 10609

Q7) 11

Q8) 4489

Q9) 9

Q10)

2	40000
2	20000
2	10000
2	5000
2	2500
2	1250
5	625
5	125
5	25
5	5
	1

$$\begin{aligned}
 \sqrt{40000} &= \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5} \\
 &= 2 \times 2 \times 2 \times 5 \times 5 \\
 &= 200
 \end{aligned}$$

Q11) Cube root of 52728

$$\begin{array}{r|l}
 2 & 52728 \\
 \hline
 2 & 26364 \\
 \hline
 2 & 13182 \\
 \hline
 3 & 6591 \\
 \hline
 13 & 2197 \\
 \hline
 13 & 169 \\
 \hline
 13 & 13 \\
 \hline
 & 1
 \end{array}$$

$$52728 = 2 \times 2 \times 2 \times 13 \times 13 \times 13 \times 3$$

Only prime factor 3 is not in the group of three

Hence 52728 should be divided by 3 to get perfect cube

$$\frac{52728}{3} = \frac{2 \times 2 \times 2 \times 13 \times 13 \times 13 \times 3}{3}$$

$$17576 = 2 \times 2 \times 2 \times 13 \times 13 \times 13$$

$$\sqrt[3]{17576} = 2 \times 13 = 26$$

Q12)

$$\begin{array}{r|l}
 5 & 25200 \\
 \hline
 5 & 5040 \\
 \hline
 2 & 1008 \\
 \hline
 2 & 504 \\
 \hline
 2 & 252 \\
 \hline
 2 & 126 \\
 \hline
 3 & 63 \\
 \hline
 3 & 21 \\
 \hline
 7 & 7 \\
 \hline
 & 1
 \end{array}$$

All prime factors are not occurring in group of three

Thus 25200 is not the perfect cube.

Q13)

$$\begin{array}{r|l}
 & 12.25 \\
 & \overline{\overline{150.0625}} \\
 1 & 1 \\
 \hline
 22 & 50 \\
 & 44 \\
 \hline
 242 & 606 \\
 & 484 \\
 \hline
 2445 & 12225 \\
 & 12225 \\
 \hline
 & 0
 \end{array}$$

$$\sqrt{150.0625} = 12.25$$

Q14) Steps

1. Draw $AC = 9.6$ cm
2. Draw perpendicular bisector of AC at O .
3. Mark $OB = OC = 3.6$ cm on this perpendicular bisector
4. $ABCD$ is required rhombus.

Q15) 15.414

1	237.6150
	1
25	137
	125
304	1261
	1216
3081	4550
	3081
3082	146900
	123296

$$\sqrt{237.61} = 15.41$$

Q16)

$$\begin{array}{r}
 2 \overline{) 9216} \\
 2 \overline{) 4608} \\
 2 \overline{) 2304} \\
 2 \overline{) 1152} \\
 2 \overline{) 576} \\
 2 \overline{) 288} \\
 2 \overline{) 144} \\
 2 \overline{) 72} \\
 2 \overline{) 36} \\
 2 \overline{) 18} \\
 3 \overline{) 9} \\
 3 \overline{) 3} \\
 1
 \end{array}$$

$$\begin{aligned}
 \sqrt{9216} &= \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3} \\
 &= 2 \times 2 \times 2 \times 2 \times 2 \times 3 \\
 &= 96
 \end{aligned}$$