SHIKSHA CLASSES

Sub. : Maths   **Answer Paper**   **Marks : 30**

Std. : VIIIth(CBSE)   **5 : Squares and Square roots**

Section A (Each 1 Mark)

Select the most appropriate answer from the given options (MCQ'S - Q.1 to Q.5)

Q.1 : Between 50 and 60, the perfect square number is

Ans : d) None

Q.2 : How many natural numbers lie between 8^2 and 9^2 ?

Ans : a) 16

Q.3 : The unit digit in the square of the number 132 is

Ans : d) 4

Q.4 : Which of the following is not pythagorean triplet?

Ans : d) 2, 3, 4

Q.5 : The smallest number by which 45 should be multiplied so as to get a perfect square is

Ans : c) 5

Fill in the blank. (Q.6 to Q.7)

Q.6 : 112 + 113 = (_____)².

Ans : 15

Q.7 : There are _____ non-square numbers between 4^2 and 5^2.

Ans : 8

Write whether the following statements are

True or False. (Q.8 to Q.9)

Q.8 : The product of two perfect squares is a perfect square.

Ans : True

Q.9 : There is only one perfect square number between 20 and 30:

Ans : True

Section B (Each 2 Marks)

Q.10 : Find the square root of 2304 by prime factorisation method.

Ans : By Division method.

$2304 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$

Square root of 2304
i.e.

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

$= 48$

2	2304
2	1152
2	576
2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

OR

Without adding, Find the sum of 1 + 3 + 5 + 7 + 9 + 11 + 12 + 15 + 17 + 19.

Ans : $1 + 3 + 5 + 7 + 9 + 11 + 12 + 15 + 17 + 19$

= Ten sum of first ten odd natural number

$= 10^2 = 100$

Q.11 : **Find the square root of 5776 by Division method.**

Ans :

```
        |    76
    7   |   5776
   +7   |  −49
  ─────────────
  146   |   876
    6   |  −876
  ─────────────
        |     0
```

Therefore $\sqrt{5776} = 76$

Section C (Each 3 Marks)

Q.12 : **Find the least number which must be added to 525, so to get a perfect square. Also find the square root of the perfect square so obtained.**

Ans : We have

```
        |    22
    2   |   525
   +2   |  − 4
  ─────────────
   42   |   125
    2   |  − 84
  ─────────────
        |    41
```

This shows that $22^2 < 525$

Next perfect square is $23^2 = 529$

Hence, the least number to be added is

$23^2 - 525 = 529 - 525 = 4$

Therefore, the perfect square so obtained is $525 + 4 = 529$

Hence, $\sqrt{529} = 23$

Q.13 : **Find the length of the side of a square whose area is 441m².**

Ans : Are of the square = 441 m²

$\therefore$ Length of the side of the square = $\sqrt{441}$

($\because$ Side of square = $\sqrt{\text{Area}}$)

By Division Method

```
        |    21
    2   |   441
   +2   |  − 4
  ─────────────
   41   |   041
        |  − 41
  ─────────────
        |     0
```

Therefore, $\sqrt{441} = 21$

Hence, the length of the side of the square is 21 m.

Q.14 : **In a right triangle ABC, $\angle B = 90^0$, AB = 6cm, BC = 8cm, Find AC**

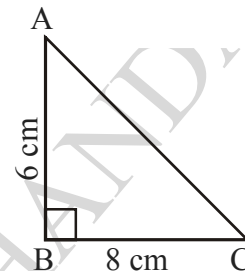**Ans :** In right triangle ABC, $\angle B = 90^0$

$\therefore$ By Pythagoras Theoram

$AC^2 = AB^2 + BC^2$

$AC^2 = 6^2 + 8^2$

$\quad\quad = 36 + 64$

$AC = \sqrt{100}$

By Division method

```
        |    10
    1   |   100
   +1   |  −1
  ─────────────
   20   |   00
    0   |   00
  ─────────────
        |    0
```

Therefore, $\sqrt{100} = 10$

Hence, AC = 10cm

OR

Write a Pythagorean triplet whose one member is 6.

Ans : Let $2m = 6$ $\quad\quad m = \dfrac{6}{2} = 3$

$\therefore m^2 - 1 = 3^2 - 1 = 9 - 1 = 8$

and $m^2 + 1 = 3^2 + 1 = 9 + 1 = 10$

So, a pythagorean triplet, whose one member is 6, is 6, 8, 10

Section D (Each 4 Marks)

Q.15 : **Find the smallest square number that is divisible by each of the number 4, 9 and 10.**

Ans : The least number divisible by each one of 4, 9 and 10 is their LCM.

The LCM 4, 9, and 10 is 180

Now, Prime factorisation of 180 is

$180 = 2 \times 2 \times 3 \times 3 \times 5$

2	4,9,10
2	2,9,5
3	1,9,5
3	1,3,5
5	1,1,5
	1,1,1

$\text{LCM} = 2 \times 2 \times 3 \times 3 \times 5$

$= 180$

The Prime factor 5 is not in pair, Therefore 180 is not a perfect square.

In Order to get a perfect square each factor of 180 must be paired. so we need to make pair of 5.

Therefore, 180 shoud be multiplied by 5

Hence, the required smallest square number is $180 \times 5 = 900$

Q.16 : **A garden has 1000 plants. He wants to plant these in such a way that the number of row and the number of columns remain same. Find the minimum number of plants he needs more for this.**

Ans : Let the number of rows be x

Then the number of columns is x

Let us find out the square root of 1000 by division method.

	3	
3	1000	
+3	−9	
61	100	
+1	− 61	
	39	

This shows that $31^2 < 1000$

Next perfect square number is $32^2 = 1024$

Hence, the minimum number of plants he needs more for this $= 1024 - 1000$

$= 24$

So, number of rows = number of columns

$= 32$

OR

There are 500 Children in a school for a P.T. drill they have to stand in such a manner that the number of rows is equal to number of columns. How many children would be left out in this arrangement?

Ans : Let us find out the square root of 500 by division method

		22	
	2	500	
+2		− 4	
42		100	
+ 2		− 84	
		16	

We get the remainder 16, It shows that $22^2 < 500$ by 16

This means that 16 Children would be left out in this arrangement

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