SQUARE ROOT

Answers:

1. a) 625 : Find the prime factors for 625.
   625 =5 x 5 x 5 x 5 by grouping we get pairs (5 x 5) x (5 x 5).none of the prime factors are left out. Therefore 625 is a perfect square.
   a , b , e are perfect squares.
   c , d are not a perfect squares.

2. $10\sqrt{10}$

3. a) 2904 find the prime factors for 2904. 2904 =2 x 2 x 11 x 11 x 2 x 3by grouping 2 and 3 are left out. so divide by 6 to eliminate 2 and 3 we get, 2904/6 = (2 x 2) x (11 x 11) = 484 = 22^2
   (b) 600 =2 x 2 x 2 x 3 x 5 x 5, 2 and 3 are left out. so divide by 6 . so 100 =10^2
   (c) 3645 = (3 × 3) × (3 × 3) × (3 × 3) × 5, 5 is leftout.so divide by 5. so 729 =27^2
   (d) 1800 = 10 x 10 x 2 x 3 x 3 , 2 is leftout . so divide by 2. so 900 = 30^2

4. 10

5. $\sqrt{1600} = 40$

6. 15

7. a) 7688 find the prime factors for 7688. 7688 =2 x 2 x31 x 31 x 2 by grouping 2 is left out. so multiple by 2 we get, 7688 x 2 = 2 x 2 x31 x 31 x 2 x 2) = 124^2
   b) 675 =5 x 5 x3 x 3 x 3, 3 is left out so multiple by 3 = 2025 = 45^2
   (c) 1008 =2 x 2 x2 x 2 x 3x 3 x 7, 7 is left out ,multiple by 7 = 7056 = 84^2
   (d) 1875 =5 x 5 x5 x 5 x 3, 3 is left out so multiple by 3 = 5625 = 75^2

8. 12, 32, 41, 50, 78 It is not a perfect square
   16, 25, 36, 64, 81 is a perfect square

9. 15 units

10. 10

11. (a) 441 prime factors are (7 x 7) x (3 x 3). 441 has equal pairs of factors. so It is a perfect square.
    (b) 186 prime factors are (6 x 31). It does not have a equal pairs of factors. so It is not a perfect square.
    (c) 343 prime factors are (7 x 7) x 7. It does not have a equal pairs of factors. so It is not a perfect square.
    (d) 2916 prime factors are (3 x 3) x (3 x 3) x (3 x 3) x (2 x 2). 2916 has equal pairs of factors. so It is a perfect square .

12. 17

13. 600

14. 22

SQUARE ROOT

Answers:

1. if $\sqrt{4225}=65$, then $\sqrt{0.4225} + \sqrt{42.25} = .65 + 6.5 = 7.15$

2. $a=\sqrt{234.09}=15.3$
   Perimeter= 4a= 61.2m

3. n^2

4. 1

5. 8

6. $\sqrt{176}+\sqrt{2401}=\sqrt{176+49}=\sqrt{225}=15$

7. Let us find the square root of 2361 using Long division method

```
      48
   ┌──────
 4 │ 2361
   │ 16
   ├──────
88 │ 761
   │ 704
   ├──────
   │  57
```

So remainder is 57 Therefore $48^2 < 2361$
Now if we subtract the remainder from main number, it will be perfect square So subtraction of 57 from 2361 will make it perfect square. $2304 = 48^2$

8. Let us find the square root of 4529 using Long division method

```
      67
   ┌──────
 6 │ 4529
   │ 36
   ├──────
127│ 929
   │ 889
   ├──────
   │  40
```

So remainder is 40 Therfore $67^2 < 4529$
Next perfect square would be $68^2 = 4624$
hence the number to be added = 4624 - 4529 = 95
So addition of 95 to 4529 will make it perfect square

9. Here we need to find the square root of the Number 1444
   2025= 3 x 3 x 3 x 3 x 5 x 5 , $\sqrt{2025} = 3 \times 3 \times 5 = 45$
   So There are 45 students and each contributed has Rs 45

10. Here we need to find the square root of the Number 625
    625= 5 x 5 x 5 x 5 $\sqrt{625} = 5 \times 5 = 25$
    So There are 25 rows and each rows has 25 adults

11. $2m, m^2+1$

12. 2025

13. $\sqrt{45}$

14. $12\sqrt{10}$

15. .03

SQUARE ROOT

ANSWERS

1. 16

2. 0.03

3. 36

4.
$$\begin{array}{r|l} & 9 \\ \hline 9 & 99 \\ & 81 \\ \hline & 18 \end{array}$$

We know that the two digit greatest number is 99
∴ Greatest two digit perfect square number is 99-18 = 81

5.
$$\begin{array}{r|l} & 10 \\ \hline 10 & 100 \\ & 100 \\ \hline & 0 \end{array}$$

We know that the three digit greatest number is 100
To find the square root of 100
∴ the least number of three digits which is a perfect square is 100 itself.

6. The numbers ending with 2,3 7 or 8 is not a perfect square.

7. a) 42 unit digit of $(42)^2 = (2)^2 = 4$
(b) 967 unit digit of $(967)^2 = (7)^2 = 49 = 9$
(c) 4563 unit digit of $(4563)^2 = (3)^2 = 9$
(d) 3156 unit digit of $(3156)^2 = (6)^2 = 36 = 6$

8. Let us consider two numbers a & 16a , a × 16a = 2116
$16a^2 = 1296$ $a^2 = 1296/16$ $a^2 = 81$ a =9, 16a = 144
Thus, the two numbers are 9 and 144

9. By prime factorisation 256 = √ 2×2×2×2×2×2×2×2 = √ 2×2×2×2×2×2×2×2
= 2×2×2×2 (Taking one prime number from each pair)
So, √ 256 = 16.

10. $\sqrt{(196/144)} = \sqrt{196}/\sqrt{144} = \sqrt{(2\times2\times7\times7)}/\sqrt{(2\times2\times2\times2\times3\times3)}$
$= (2\times7)/(2\times2\times3)$
$= 14/12 = 7/6$

11. First convert the decimal number 2.89 to fraction. 2.89 = 289/100
$\sqrt{(289/100)} = \sqrt{289}/\sqrt{100} = \sqrt{17\times17}/\sqrt{10\times10}$
= 17 /10 = 1.7 Hence square root of 2.89 = 1.7

12.
$$\begin{array}{r|l} & 2\ 3 \\ \hline 2 & 5\ 29 \\ +2 & 4 \\ \hline 43 & 1\ 29 \\ & -1\ 29 \\ \hline & 0 \end{array}$$

13. 2, 3, 7 or 8

14. 99,856

15. 79^2