SQUARE ROOT & CUBE ROOT

SYNOPSIS - 1

Definition of square and square root : If a number is multiplied by itself then the product is said to be square of that number.

Example : 25 is the square of 5 scince $5\times5=25$. The number is called a square root of the product. 5 is a square root of 25.

Perfect square number or perfect square: If a number can be written as the product of two equal factors then the number is said to be a perfect square,

Example: 81 can be written as 81 = 9×9 (two equal factors). So 81 is a perfect square.

Number	Square of the number	Last two digits in the square of the number	Number Preceeding 25
15	225	25	$2=1\times2$
25	625	25	$6=2\times3$
35	1225	25	$12=3\times4$
45	-	25	$20=4\times5$
55	-	25	__ = ___

Number		Square of the number	
1 to 9	Single digit	1 to 81	(one or two digits)
10 to 99	Double digit	100 to 9801	(three or four digits)
100 to 999	Triple digit	10000 to 998001	(Five or six digits)
1000 to 9999	four digit	1000000 to 99980001	(Seven or eight digits)

Number	Square Root	Square
1	1.000	1
2	1.414	4
3	1.732	9
4	2.000	16
5	2.236	25
6	2.449	36
7	2.646	49
8	2.828	64
9	3.000	81
10	3.162	100
11	3.317	121

12	3.464	144
17	4.123	289
20	4.472	400
23	4.796	529
38	6.164	1414
45	6.708	2025
56	7.483	3136
69	8.307	4764
79	8.888	6241
97	9.849	9409

Historical Method: Finding $\sqrt{5}$ to any required degree of accuracy.

Step 1 :- First take any number between 1 and 24 (say 4) Divide 24 by 4

$24 \div 4$ is 6

$4^2 = 16 < 4 \times 6 = 24 < 6^2 = 36$

Taking the square root, both sides, we get $4 < \sqrt{24} < 6$

Step 2:- Next, take 5, the mean of 4 and 6 $\left(\frac{4+6}{2} = \frac{10}{2} = 5 \right)$

$24 \div 5$ is 4.8. Hence $4.8 < \sqrt{24} < 5$.

Step 3:- Take 4.9 the mean of 4.8 and 5 [Mean (Average)= $\frac{4.8+5}{2} = \frac{9.8}{2} = 4.9$]

$24 \div 4.9$; 4.898 (approximately)

Hence $4.898 < \sqrt{24} < 4.9$

Note: 1) At each stage, this process produces two number, between which $\sqrt{24}$ must lie.

2) The difference between these numbers decreases at each stage. For example, at the end of stage 2, $\sqrt{24}$ is squeezed (sandwiched) between 4.8 and 5.

So we could say that $\sqrt{24} = 4.9 \pm 0.1$. At the end stage 3, we could similarly say that

WORK SHEET - 1

Single Answer Type

1. $\sqrt{53824} =$
   1) 202 2) 232 3) 242 4) 332

2. The value of $\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}$ is
   1) 4 2) 6 3) 8 4) 10

3. Evaluate $\sqrt{41-\sqrt{21+\sqrt{19-\sqrt{9}}}}$
   1) 3 2) 5 3) 6 4) 48

4. $\sqrt{176+\sqrt{2401}} =$
   1) 14 2) 15 3) 18 4) 24

5. $\left(\sqrt{\frac{225}{729}}-\sqrt{\frac{25}{144}}\right)\div\sqrt{\frac{16}{81}} =$
   1) $\frac{1}{48}$ 2) $\frac{5}{48}$ 3) $\frac{5}{16}$ 4) $\frac{6}{16}$

6. If $x\times y = x+y+\sqrt{xy}$, the value of 6×24 is
   1) 41 2) 42 3) 43 4) 44

7. If $\sqrt{18225}=135$, then the value of
   $\sqrt{182.25}+\sqrt{1.8225}+\sqrt{0.018225}+\sqrt{0.00018225}$ is
   1) 1.49985 2) 14.9985 3) 149.985 4) 1499.85

8. If $\frac{52}{x}=\sqrt{\frac{169}{289}}$ then the value of x is
   1) 52 2) 58 3) 62 4) 68

9. If $\sqrt{1+\frac{x}{169}}=\frac{14}{13}$. Then x is
   1) 1 2) 13 3) 27 4) 30

10. If $\sqrt{1+\frac{55}{729}}=1+\frac{x}{27}$ then $x=$
    1) 1 2) 3 3) 5 4) 7

11. Cube root of 0.000216 is
    1) 0.6 2) 0.06 3) 0.006 4) 6

12. $\sqrt[3]{4\frac{12}{125}} =$

1) $1\frac{2}{5}$ 2) $1\frac{3}{5}$ 3) $1\frac{4}{5}$ 4) $2\frac{2}{5}$

13. $\sqrt[3]{\sqrt{0.000064}} =$

1) 0.02 2) 0.2 3) 2 4) 0.002

14. The largest four-digit number which is a perfect cube, is

1) 8000 2) 9261 3) 9999 4) 9836

15. The least perfect square number divisible by 3, 4, 5, 6 and 8 is

1) 900 2) 1200 3) 2500 4) 3600

16. The least number by which 294 must be multiplied to make it a perfect square

1) 2 2) 3 3) 6 4) 24

17. The least nmber by which 1470 must be divided to get a number which is a perfect square is

1) 5 2) 6 3) 15 4) 30

18. What is the smallest number to be substracted from 549162 in order to make it a perfect square?

1) 28 2) 36 3) 62 4) 81

19. The smallest number added to 680621 to make the sum a perfect square is

1) 4 2) 5 3) 6 4) 8

Multi Answer Type

20. Which of the following is correct?

1) The greatest 4-digit perfect square number is 9801
2) The least 4-digit perfect square number is 1024
3) The greatest 4-digit perfect cube number is 9261
4) The least 4-digit perfect cube number is 1000

21. If $\sqrt{1369} + \sqrt{0.0615 + x} = 37.25$. Then $x =$

1) 10^{-3} 2) 10^{-2} 3) $\frac{10^2}{10^5}$ 4) $\frac{10^6}{10^8}$

22. If $\sqrt{3^n} = 729$ then $n =$

1) 8 2) 12 3) Multiple of 3 4) Multiple of 4

23. The square root of $\left(272^2 - 128^2\right)$ is greater than

1) 220 2) 200 3) 240 4) 256

Reasoning Answer Type

24. Statement-1: The square root of even number is even.
Statement-2: The square root of odd number is odd.
1) Both Statements are true, Statement II is the correct explanation of Statement I.
2) Both Statements are true, Statement II is not correct explanation of Statement I.
3) Statement I is true, Statement II is false.
4) Statement I is false, Statement II is true.

25. Statement-1: $3^2+4^2=5^2$
Statement-2: The sum of two squares is always perfect square.
1) Both Statements are true, Statement II is the correct explanation of Statement I.
2) Both Statements are true, Statement II is not correct explanation of Statement I.
3) Statement I is true, Statement II is false.
4) Statement I is false, Statement II is true.

26. Statement-1: $\sqrt{x}-\sqrt{y}=\sqrt{xy}$ when $x, y=0$
Statement-2: $\sqrt{x+y}=\sqrt{x}+\sqrt{y}$
1) Both Statements are true, Statement II is the correct explanation of Statement I.
2) Both Statements are true, Statement II is not correct explanation of Statement I.
3) Statement I is true, Statement II is false.
4) Statement I is false, Statement II is true.

Comprehension Type

$\sqrt{a^2+2ab+b^2}=a+b$

$\sqrt{x^2}=|x|$

27. If $a=0.1039$, then the value of $\sqrt{4a^2-4a+1}+3a$ is
1) 0.1039 2) 0.2078 3) 1.1039 4) 2.1039

28. The square root of $\frac{(0.75)^3}{1.075}+\left[0.75+(0.75)^2+1\right]$ is
1) 1 2) 2 3) 3 4) 4

29. If $3a=4b=6c$ and $a+b+c=27\sqrt{29}$ then $c=$
1) $3\sqrt{29}$ 2) 81 3) 87 4) $\sqrt{29}$

Writeup-2

Square root of 0.9 is 0.948 as

$$\begin{array}{r|l} 9 & 0.\overline{90}\,\overline{00}\,\overline{00} \;\big|\; 0.948 \\ & \underline{81} \\ & 900 \\ 184 & \underline{736} \\ & 16400 \\ 1888 & \underline{15104} \end{array}$$

$\therefore \sqrt{0.9} = 0.948$ which is upto 3 decimals.

By using this method find following

30. $\sqrt{0.121} =$

1) 0.011 2) 0.11 3) 0.347 4) 1.1

31. $\sqrt{0.064} =$

1) 0.008 2) 0.08 3) 0.252 4) 0.8

32. $\sqrt{\dfrac{0.16}{0.4}} =$

1) 0.02 2) 0.2 3) 0.63 4) 0.72

Matrix Matching Type

33. Match the following

Column - I	Column - II
1) $\sqrt{\dfrac{0.081\times0.484}{0.0064\times6.25}} =$	a) 6
2) $\sqrt{\dfrac{0.204\times42}{0.07\times3.4}} =$	b) 50
3) $\sqrt{\dfrac{9.5\times0.085}{0.0017\times0.19}} =$	c) 0.99
4) $\sqrt{\dfrac{(0.03)^2+(0.21)^2+(0.065)^2}{(0.003)^2+(0.021)^2+(0.0065)^2}} =$	d) 10
	e) 10-0.1

Integer Answer Type

34. The value of $\frac{\sqrt{248+\sqrt{51+\sqrt{169}}}}{4}$ =

35. If $a\times b\times c=\frac{\sqrt{(a+2)(b+3)}}{c+1}$ then the value of $6\times15\times3=$

36. If $\sqrt{1+\frac{x}{144}}=\frac{13}{12}$ then the value of $\sqrt{x}=$

WORK SHEET - 2

Single Answer Type

1. 1225 plants are to be planted in a garden in such a way that each row contains as many plants as the number of rows. Then the number of plants in each row is
   1) 32 2) 36 3) 35 4) 25
2. By multiplying with which of the following numbers does the product of 8 × 9 × 10 × 11 × 12 becomes a perfect square ?
   1) 55 2) 110 3) 165 4) 310
3. By adding which of the following numbers does the product of 15 × 16 × 17 × 18 becomes a perfect square ?
   1) 3 2) 8 3) 2 4) 1
4. A's age is square of his daughter's age. If the sum of their ages is 72, then A's age is
   1) 64 2) 49 3) 81 4) 36
5. Anish said that the product of his age (in years) and the square of his rank in the class is 128, and the product of the square of his age (in years) and his rank in class is 256. The age of Anish is
   1) 16 2) 4 3) 32 4) 8
6. What is the smallest number that must be multiplied with 69120 to make it a perfect square ?
   1) 30 2) 15 3) 60 4) 90
7. What is the least possible number, the square of which when added to the sum of the squares of 10 and 11 results in a perfect square ?
   1) 3 2) 4 3) 1 4) 2
8. What is the least number which is a perfect square and also contains 650 as a factor ?
   1) 33,800 2) 8,450 3) 16,900 4) 67,600

9. If the square of 5^{th} multiple of 8 is added to the square of first odd composite number, then the square root of the sum is
   1) An even prime 2) An odd prime
   3) A perfect number 4) None

CUMULATIVE

Single Answer Type

1. The value of $\sqrt{21\frac{2797}{3364}}$ is x then the value of x is

   1) $\frac{271}{58}$ 2) $\frac{232}{58}$ 3) $4\frac{59}{38}$ 4) none

2. If $\sqrt{\frac{32.4}{x}} = 2$, then x is

   1) 4 2) 8.1 3) 4.1 4) 8

3. A boy arranged 16,390 balls in the form of 4 equal solid squares. After such arrangement, if 6 balls remained, then the number of balls in each row of each square is 1) 128 2) 64
   3) 32 4) 16

4. A cricket team consists of 11 players. By standing in a particular way, they formed a solid square with the largest possible side. Then the ratio of remaining players and the number of players in row of the square is
   1) 2 : 7 2) 7 : 2 3) 3 : 2 4) 2 : 3

5. A man has 5775 square tiles. Then the least number of tiles that are required to add to the given tiles to complete the big square is
   1) 1 2) 2 3) 4 4) 6

6. The area of a field is 350 sq. units. If fencing is laid inside it in the form of a largest possible square, then the length of the fencing is [Area of the square must not be a decimal number]
   1) 72 units 2) 68 units 3) 18 units 4) 17 units

7. The least number that can be subtracted from 540 to make it the product of squares of two prime numbers is
   1) 11 2) 40 3) 56 4) 140

8. The least number that should be subtracted form 0.000326 to make it a perfect square is
   1) 0.000002 2) 0.000004 3) 0.02 4) 0.004

9. The value of $\sqrt{\frac{(0.03)^2+(0.21)^2+(0.065)^2}{(0.003)^2+(0.021)^2+(0.0065)^2}}$ is

1) 0.1 2) 10 3) 10^2 4) 10^3

10. The square root of 2222 is

1) 11.11 2) 47.14 3) 49.12 4) 48.72

WORK SHEET – 1 (KEY)				
1) 2	2) 1	3) 3	4) 2	5) 3
6) 2	7) 2	8) 4	9) 3	10) 1
11) 2	12) 2	13) 2	14) 2	15) 4
16) 3	17) 4	18) 4	19) 1	20) 1,2,3,4
21) 1,3	22) 2,3,4	23) 1,2	24) 1	25) 3
26) 3	27) 3	28) 2	29) 4	30) 3
31) 3	32) 3	33) 1-c,e 2-a 3-b 4-d	34) 4	35) 3
36) 5				

1.

2	$\overline{53}\,\overline{82}\,\overline{4}$	232
	4	
43	138	
	129	
462	924	
	924	

$\sqrt{53824} = 232$

2. $\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+15}}}}$

$= \sqrt{10-1\sqrt{25+\sqrt{108+13}}}$

$= \sqrt{10+\sqrt{25+11}}$

$= \sqrt{10+6}$

$= 4$

3. $\sqrt{41-\sqrt{21+\sqrt{19-3}}}$

$= \sqrt{41-\sqrt{21+4}}$

$= \sqrt{841-5}$

$= \sqrt{36}$

$= 6$

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

5. $\left(\frac{15}{27}-\frac{5}{12}\right)\div\frac{4}{9}$

$\frac{15}{108}\times\frac{9}{4}=\frac{5}{16}$

6. $6\times 24 = 6+24+\sqrt{6\times 24}$

$= 30+12 = 42$

7. $\sqrt{\frac{18225}{10^2}}+\sqrt{\frac{18225}{10^4}}+\sqrt{\frac{18225}{10^6}}+\sqrt{\frac{18225}{10^8}}$

$= \frac{\sqrt{18225}}{10}+\frac{\sqrt{18225}}{10^2}+\frac{\sqrt{18225}}{10^3}+\frac{\sqrt{18225}}{10^4}$

$= \frac{135}{10}+\frac{135}{100}+\frac{135}{1000}+\frac{135}{10000}$

$= 13.5+1.35+0.135+0.0135$

$= 14.9985$

8. $\frac{52}{x}=\frac{13}{17}\Rightarrow x=\frac{52\times 17}{13}=68$

9. $1+\frac{x}{169}=\frac{196}{169}\Rightarrow\frac{x}{169}=\frac{196}{169}-1=\frac{27}{169}$

$\therefore x = 27$

10. $\sqrt{\frac{784}{729}}=\frac{27+x}{27}\Rightarrow\frac{28}{27}=\frac{27+x}{27}$

$28 = 27+x$

$\therefore x = 1$

11. $(0.00216)^{1/3} = \left(\frac{216}{10^6}\right)^{1/3} = \frac{6}{10^2} = 0.06$

12. $\sqrt[3]{\frac{512}{125}} = \frac{8}{5} = \frac{13}{5}$

13. $\sqrt{\frac{64}{10^6}} = \frac{8}{10^3} = 0.008$

$\sqrt[3]{0.008} = \left(\frac{8}{10^3}\right)^{1/3} = \frac{2}{10} = 0.2$

14. Clearly, 9261 is a perfect cube satisfying the given property.

15. L.C.M. of 3, 4, 5, 6, 8 is 120. Now $120 = 2\times2\times2\times3\times5$

To make it a perfect square, it must be multiplied by $2\times3\times5$

So, required number = $2^2\times2^2\times3^2\times5^2 = 3600$

16. $294 = 7\times7\times2\times3$

To make it a perfect square, it must be multiplied by 2×3 i.e. 6

$\therefore$ Required number = 6

17. $1470 = 7\times7\times5\times6$

To make it a perfect square, it must be divided by 5×6 i.e. 30.

18.

7	$\overline{54}\,\overline{91}\,\overline{62}$	741
	49	
144	591	
	576	
462	1562	
	1481	
	81	

$\therefore$ Required number to be substracted = 81.

19.

8	$\overline{68}\,\overline{06}\,\overline{21}$	824
	64	
162	406	
	324	
1644	8221	
	6576	
	1645	

$\therefore$ Number to be added $= (825)^2 - 680621$

$= 680625 - 680621$

$= 4$

20. 1, 2, 3, 4

21. $37+\sqrt{0.0615+x}=37.25$

$0.0615+x=(0.25)^2=0.0625$

$x=0.001=\frac{1}{10^3}=10^{-3}$

22. $\sqrt{3^n}=729=3^6\Rightarrow\left(\sqrt{3^n}\right)^2=\left(3^6\right)^2\Rightarrow n=12$

23. $\sqrt{(272)^2-(128)^2}=\sqrt{(272+128)(272-128)}=\sqrt{400\times144}=240$

27. $\sqrt{4a^2-4a+1}+3a=\sqrt{(1-2a)^2}+3a=1-2a+3a=1+a$

$=1+0.1039=1.1039$

28. $\sqrt{\frac{(0.75)^3+(1.075)\left(1^2+1\times0.75+(0.75)^2\right)}{1.075}}$

$=\sqrt{\frac{(0.75)^3+1^3-(0.75)^3}{0.25}}=\sqrt{\frac{1}{0.25}}=\sqrt{\frac{100}{25}}=\sqrt{4}=2$

29. $4b=6c\Rightarrow b=\frac{3}{2}c$ and $3a=4b\Rightarrow a=\frac{4}{3}b=\frac{4}{3}\left(\frac{3}{2}\right)c=2c$

$\therefore a+b+c=27\sqrt{29}\Rightarrow 2c+\frac{3}{2}c+c=27\sqrt{29}$

$\frac{9}{2}c=27\sqrt{29}\Rightarrow c=6\sqrt{29}$

30.

3	$0.\overline{12}\,\overline{10}\,\overline{00}$	0.347
	9	
64	310	
	256	
687	5400	
	4809	

31.

2	$0.\overline{06}\,\overline{40}\,\overline{00}$	0.252
	4	
45	240	
	225	
502	1500	
	1006	

32. $\sqrt{\frac{0.16}{0.4}} = \sqrt{\frac{16}{40}} = \sqrt{\frac{4}{10}} = \sqrt{0.4} = 0.63$

$$\begin{array}{r|l} 6 & 0.\overline{40}\,\overline{00}\,\overline{00} \;\big|\; 0.63 \\ \cline{2-2} 123 & \underline{36} \\ & \quad 400 \\ & \quad \underline{369} \end{array}$$

33. 1) $\sqrt{\frac{81\times 484}{64\times 625}} = \frac{9\times 22}{8\times 25} = 0.99$

2) $\sqrt{\frac{204\times 42}{7\times 34}} = \sqrt{36} = 6$

3) $\sqrt{\frac{95\times 8500}{19\times 17}} = \sqrt{5\times 500} = 50$

4) $\sqrt{\frac{\left[(0.03)^2 + (0.21)^2 + (0.065)^2\right]}{\frac{(0.03)^2}{10^2} + \frac{(0.21)^2}{10^2} + \frac{(0.065)^2}{10^2}}}$

$= \sqrt{100} = 10$

34. $\frac{\sqrt{248+\sqrt{51+13}}}{4} = \frac{\sqrt{248+18}}{4} = \frac{16}{4} = 4$

35. $6\times 15\times 3 = \frac{\sqrt{(6+2)(15+3)}}{3+1} = \frac{\sqrt{8\times 18}}{4} = \frac{2\times 2\times 3}{4} = 3$

36. $1+\frac{x}{144} = \frac{169}{144} \Rightarrow \frac{x}{144} = \frac{169}{144} - 1 = \frac{169-144}{144} = \frac{25}{144}$

$\frac{x}{144} = \frac{25}{144} \Rightarrow x = 25$

$\therefore \sqrt{x} = 5$

WORK SHEET – 2 (KEY)				
1) 3	2) 3	3) 4	4) 1	5) 4
6) 1	7) 4	8) 3	9) 2	

1. If the number of rows be 'x' then total number of plants = $x \times x = x^2$

   but $x^2 = 1225$ (given) $\Rightarrow$ $x = \sqrt{1225}$

   Clearly, $1225 = 5 \times 5 \times 7 \times 7$. So, $\sqrt{1225} = 5 \times 7 = 35$.

   $\therefore$ $x = 35$.

2. $8 \times 9 \times 10 \times 11 \times 12 = 2^3 \times 3^2 \times 2 \times 5 \times 11 \times 2 \times 2 \times 3 = 2^6 \times 3^3 \times 5 \times 11$
   $= (2^6 \times 3^2) \times 3 \times 5 \times 11 = (2^6 \times 3^2) \times 165$

3. $15 \times 16 \times 17 \times 18 = 240 \times 17 \times 18 = 73440$.

   $\therefore$ 73440 + 1 = 73441 which is a perfect square. (By long division method)

   $\therefore$ 1 should be added to the product.

4. If daughter's age is 8 years, then the father's age = $(8)^2 = 64$.

   $\therefore$ Sum of the ages is 8 + 64 = 72.

   $\therefore$ Father's age = 64.

5. Let the age of Anish be 'x' years and rank of Anish be 'y' years,
   then $x \times y^2 = 128$ and $x^2 \times y = 256$
   If $x = 8$, then $8 \times y^2 = 128$

   $\Rightarrow$ $y^2 = \frac{128}{8} = 16$.

   $\therefore$ $y = 4$, i.e., $8 \times (4)^2 = 128$.

   $\therefore$ Age of Anish is 8 years.

6. $69120 = 3 \times 5 \times 4 \times 8 \times 2 \times 2 \times 6 \times 6 = 2^9 \times 3^3 \times 5 = (2^8 \times 3^2) \times 2 \times 3 \times 5 = (2^8 \times 3^2) \times 30$

   $\therefore$ 30 should be multiplied to make 69120 to be a perfect square.

7. Let the least possible number be 'x'.

   According to the problem, $x^2 + 10^2 + 11^2 = x^2 + 100 + 121 = x^2 + 221$

   This becomes a perfect square if $x = 2$.

   i.e., $(2)^2 + 221 = 4 + 221 = 225$.

   $\therefore$ Possible number = 2.

8. Since $130 \times 130 = 16{,}900$ is a perfect square.

   but $650 \times 26 = 16{,}900$ is a least perfect square containing 650 as a factor.

9. 5^{th} multiple of 8 is = $5 \times 8 = 40$; $40^2 + 9^2 = 1681$, $\sqrt{1681} = 41$

CUMULATIVE (KEY)				
1) 1	2) 2	3) 2	4) 4	5) 1
6) 1	7) 3	8) 1	9) 2	10) 2

1. **[1]** $x = \sqrt{21\frac{2797}{3364}} = \sqrt{\frac{73441}{3364}} = \frac{271}{58}$

2. **[2]** $\frac{32.4}{x} = 4 \Rightarrow 4x = 32.4$

   $\therefore x = 8.1.$

3. **[2]** Total number of balls = 16,390

   The number of balls that are used for arrangement = 16,384

   Let number of balls in a row = a

   Then $4a^2 = 16, 384 \Rightarrow a^2 = \frac{16,384}{4} = 4096$

   $\therefore a = \sqrt{4096} = 64$

4. **[4]** The largest perfect square less than 11 is 9

   $\therefore$ The number of remaining players = 11 - 9 = 2

   The number of players in a row = $\sqrt{9} = 3$

   $\therefore$ The required ratio = 2 : 3

5. **[1]** $75^2 < 5775 < 76^2 \Rightarrow 5775 < 76^2 = 5776 \Rightarrow 5776 - 5775 = 1$

6. **[1]** The area of the largest possible square = 324 sq. units

   $\Rightarrow$ side of the square = 18 units $\Rightarrow$ perimeter of the square = 72 units

   $\Rightarrow$ length of the fencing = 72 units

7. **[3]** Perfect squares less than 540 are 529, 484, 441, 400.....

   $529 = 23^2 \times 1^2$ (Here 1 is not prime]

   $484 = 22^2 = 11^2 \times 2^2$ [Here 11 and 2 are prime numbers]

   $\therefore$ 540 – 484 = 56 is the required number.

8. **[1]** $0.000326 = \frac{326}{10^6}$. The nearest square of 326 is 18 and $18^2 = 324$.

$\therefore$ Required number to be subtracted = $\frac{2}{10^6} = 0.000002$

9. **[2]** $\sqrt{\frac{(0.03)^2+(0.21)^2+(0.065)^2}{\left(\frac{0.03}{10}\right)^2+\left(\frac{0.21}{10}\right)^2+\left(\frac{0.065}{10}\right)^2}}$

$= \sqrt{\frac{100\left[(0.03)^2+(0.21)^2+(0.065)^2\right]}{(0.03)^2+(0.21)^2+(0.065)^2}}$

$= \sqrt{100} = 10$

10. **[2]** $\sqrt{2222} = 47.14$