SIMPLIFICATION

1. $56 \div 7 \times (35 - 45 \div 3) \div 4 = ?$
   (A) 1.6 (B) 48
   (C) 40 (D) 8
2. What is the value of $4 \times [3 \div 4 \times \{4 \times 3 \div (3 \times 3)\}]$?
   $4 \times [3 \div 4 \times \{4 \times 3 \div (3 \times 3)\}]$ का मान क्या होगा?
   (A) 3 (B) 9
   (C) 12 (D) 4
3. Find the value of $10 - [5 - \{6 - (5 - 4 - 3)\}]$.
   $10 - [5 - \{6 - (5 - 4 - 3)\}]$ का मान ज्ञात करें।
   (A) 13 (B) 9
   (C) 10 (D) 12
4. $108 \div 18 \times (55 - 35 \div 5) \div 3 = ?$
   (A) 96 (B) 144
   (C) 18 (D) 120
5. $[\{(161 + (19 - 2) + 1)\} - 3] = ?$
   (A) 176 (B) 171
   (C) 172 (D) 174
6. *Find the value of the following:*
   निम्न का मान ज्ञात कीजिए:
   $10 + \{26 - 15 \times (20 - 5 \div 2 \times \overline{(7-5)})\} = ?$
   (A) -189 (B) 198
   (C) 189 (D) -198
7. $154 \div [30 - \{33 - (25 - 176 \div \overline{(4 \times 4)})\}] = ?$
   (A) 14 (B) 2
   (C) 22 (D) 11
8. $(-7)\,[44 \div \{7 - (-4)\}] = ?$
   (A) -77 (B) -28
   (C) 28 (D) 77
9. $\frac{4}{5}$ of 1218 = $\frac{4}{7}$ of ?
   1218 का $\frac{4}{5}$ का $\frac{4}{7}$ = ?
   (A) 415.6 (B) 516.2
   (C) 620.5 (D) 556.8
10. Solve / हल करें।
    $6 + 6 \div 6 + 6 \times 6 - 6 = ?$
    (A) 38 (B) 37
    (C) 36 (D) 35
11. 78% of 450 + ?% of 250 = 441
    450 का 78% + 250 का ?% = 441
    (A) 45 (B) 50
    (C) 30 (D) 36
12. $(800 \div 64) \times (1296 \div 36) = ?$
    (A) 420 (B) 460
    (C) 500 (D) 450
13. Solve/हल कीजिये?
    $240 \div 8 \times 512 \div 4$
    (A) 3940 (B) 3340
    (C) 3840 (D) 4040
14. Solve the following/निम्नलिखित को हल कीजिये-
    $1800 \div (11 \times 24 \div 8 \times 3 - 69)^2$
    (A) 2 (B) 3
    (C) 5 (D) 4
15. Find the value of/का मान ज्ञात कीजिये?
    $30 - (3 \times 4 + 15 \div 3) + 8 \times 3 \div 6$
    (A) 15 (B) 21
    (C) 19 (D) 17
16. $8432 + 937 + 260 - ? = 5605 + 713$
    (A) 3211 (B) 4311
    (C) 3311 (D) 15947
17. The value of/ का मान है:
    $3 + [3 \times \{3 - (3 + 3) \div 6\}]$
    (A) -3 (B) 9
    (C) 6 (D) 3

18. 32 ÷ 2 ÷ 2 ÷ 2 ÷ 2 = ?
(A) 8 (B) 2
(C) 32 (D) 16

19. 5 + 5 × 5 ÷ (5 × 5) × 5 = ?
(A) 120 (B) 10
(C) 130 (D) 50

20. 81 − [20 + 7 × (30 − 3 × 9)] = ?
(A) 40 (B) 20
(C) 30 (D) 0

21. − 5 {−5−(−5−2)−5} = ?
(A) 18 (B) -18
(C) -15 (D) 15

22. Solve the following:
निम्नलिखित को हल करें:
$(243)^2 \div (27)^2 \times 16 \div 8 = ?$
(A) 70 (B) 1
(C) 162 (D) 81

23. Solve./हल करें।
49 + 1331 ÷ 121 − 72 − 5 = ?
(A) −27 (B) −17
(C) 17 (D) 0

24. Solve the following:
निम्नलिखित को हल करें:
11 + 11 ÷ 11 + 11 × 11 – 11 = ?
(A) 1 (B) 122
(C) 0 (D) 132

25. Simplify: 245 - [135 - {84 ÷ 4 of 3 - (11 - 12 ÷ 3)}]
सरल कीजिए: 245 - [135 - {84 ÷ 4 of 3 - (11 - 12 ÷ 3)}]
(A) 110 (B) 100
(C) 90 (D) 120

26. Solve the following:
निम्नलिखित को हल कीजिये:
80 ÷ (16 ÷ 2) + {[(6 × 5) – 15 × 2 + 4] – 12}
(A) –62 (B) 2
(C) –17 (D) 148

27. Simplify:/सरल करे:
1800 ÷ 10 × {45 ÷ (17 - 2)} × 2 + {- 2(1 + 2)}
(A) 180 (B) 0
(C) 1074 (D) 114

28. If P = 2 + 0.2 ÷ (0.2 × 2) − 1 × 2, Q = 2 – 0.2 ÷ (0.2 × 2) − $\frac{1}{2}$ × 2, find the value of $\frac{P}{Q}$.
यदि P = 2 + 0.2 ÷ (0.2 × 2) − 1 × 2, Q = 2 – 0.2 ÷ (0.2 × 2) − $\frac{1}{2}$ × 2 है, तो $\frac{P}{Q}$ का मान ज्ञात कीजिए।
(A) 0.5 (B) 1.0
(C) 1.5 (D) −0.5

29. If P = 0.3 × 0.3 + 0.03 × 0.03 - 0.6 × 0.03 and Q = 0.54, then what is $\frac{P}{Q}$ equal to?
यदि P = 0.3 × 0.3 + 0.03 × 0.03 - 0.6 × 0.03 और Q = 0.54, तब $\frac{P}{Q}$ किसके समतुल्य है?
(A) 4.5 (B) 0.45
(C) 4.05 (D) 0.135

30. If 3x + 4 × 8 ÷ 9 = x ÷ 3 - 1 then find the value of x?
यदि 3x + 4 × 8 ÷ 9 = x ÷ 3 - 1 है तो x का मान ज्ञात कीजिये?
(A) 2 (B) $\frac{21}{24}$
(C) 1 (D) $-\frac{41}{24}$

31. $(24)^2 – (18)^2$ = ?
(A) 252 (B) 336
(C) 242 (D) 284

32. $(36)^2 – (35)^2$ = ?
(A) 73 (B) 75
(C) 72 (D) 71

33. $(25.732)^2 – (15.732)^2$ = ?
(A) 4.1464 (B) 41.464
(C) 414.64 (D) 4164.4

34. $(254)^2 - (252)^2 = ?$

(A) 872 (B) 506

(C) 1012 (D) 984

35. $32 \times 32 + 1476 + 18 \times 18 = ? + 324$

(A) 2000 (B) 2500

(C) 3000 (D) 3600

36. $10.5 \times 10.5 + 7.5 \times 7.5 = ? - 157.5$

(A) 256 (B) 324

(C) 400 (D) 484

37. $\frac{(28.4)^2 - (24.4)^2}{28.4 - 24.4} = ?$

(A) 52 (B) 8

(C) 52.8 (D) 4

38. $\frac{(256 + 132)^2 + (256 - 132)^2}{256 \times 256 + 132 \times 132} = ?$

(A) 1 (B) 2

(C) 388 (D) 124

39. $\frac{(869 + 674)^2 - (869 - 674)^2}{869 \times 674} = ?$

(A) 1543 (B) 195

(C) 2 (D) 4

40. $\left(\frac{375 \times 375 \times 375 + 225 \times 225 \times 225}{375 \times 375 + 225 \times 225 - 375 \times 225}\right) = ?$

(A) 300 (B) 500

(C) 150 (D) 600

$= (375 + 225) = 600$

41. $\left(\frac{158 \times 158 + 158 \times 153 + 153 \times 153}{158 \times 158 \times 158 - 153 \times 153 \times 153}\right) = ?$

(A) $\frac{1}{5}$ (B) 311

(C) $\frac{1}{311}$ (D) 5

42. $\frac{(216+144)^2 - (216-144)^2}{(432 \times 288)} = ?$

(A) 72 (B) 4

(C) 1 (D) 360

43. $\frac{5.47 \times 5.47 - 4.53 \times 4.53}{0.94} = ?$

(A) 0.94 (B) 10

(C) 4 (D) 1

44. Find the value of $\frac{0.3^4 - 0.2^4}{0.3^2 + 0.2^2}$?

$\frac{0.3^4 - 0.2^4}{0.3^2 + 0.2^2}$ का मान ज्ञात कीजिये ?

(A) 0.05 (B) 0.15

(C) 0.51 (D) 0.5

45. *Solve / हल कीजिये*

$8.75 \times 8.75 - 135.625 + 7.75 \times 7.75 = ?$

(A) 3 (B) 1

(C) 4 (D) 2

46. Find the value of $\frac{515.86 \times 515.86 - 314.87 \times 314.87}{200.99}$

$\frac{515.86 \times 515.86 - 314.87 \times 314.87}{200.99}$ का मान ज्ञात कीजिए

(A) 200.19 (B) 201

(C) 83.073 (D) 830.73

47. $\frac{.356 \times .356 - 2 \times .356 \times .106 + .106 \times .106}{.632 \times .632 + 2 \times .632 \times .368 + .368 \times .368} = ?$

(A) .0345 (B) .0625

(C) .25 (D) .0765

48. Find the value of 1093×1093.

1093×1093 का मान ज्ञात कीजिए।

(A) 1194649 (B) 1162481

(C) 1424649 (D) 1428481

49. $\frac{(36.54)^2 - (3.46)^2}{?} = 40$

(A) 3.308 (B) 4

(C) 33.08 (D) None of these

50. $\frac{2.3 \times 2.3 \times 2.3 - 1}{2.3 \times 2.3 + 2.3 + 1} = ?$

(A) 0.3 (B) 1.3

(C) 2.2 (D) 3.3

51. $\frac{6.5 \times 4.7 + 6.5 \times 5.3}{1.3 \times 7.9 - 1.3 \times 6.9} = ?$

(A) 3.9 (B) 39

(C) 34.45 (D) 50

52. $1.07 \times 65 + 1.07 \times 26 + 1.07 \times 9 = ?$

(A) 10.73 (B) 10.7

(C) 107 (D) 1.07

53. $\frac{69842 \times 69842 - 30158 \times 30158}{69872 - 30158} = ?$

(A) 100000 (B) 39684

(C) 69842 (D) 30158

54. $\frac{(0.06)^2+(0.47)^2+(0.079)^2}{(0.006)^2+(0.047)^2+(0.0079)^2} = ?$

(A) 0.1 (B) 10

(C) 100 (D) 10000

55. $\sqrt{?}+ 84 = \sqrt{625}$

(A) 25 (B) 26

(C) 125 (D) None of these

56. Which of the following numbers is the square root of 35721?

निम्न में से कौन-सी संख्या 35721 का वर्गमूल है?

(A) 171 (B) 201

(C) 179 (D) 189

57. Which of the following numbers is the square root of 6084?

निम्न में से कौन-सी संख्या 6084 का वर्गमूल है?

(A) 68 (B) 78

(C) 72 (D) 79

58. Which of the following numbers is the square root of 16129?

निम्न में से कौन-सी संख्या 16129 का वर्गमूल है?

(A) 123 (B) 133

(C) 127 (D) 121

59. Find the number of digits in square root of 21025

21025 के वर्गमूल में अंकों की संख्या बताये।

(A) 4 (B) 5

(C) 2 (D) 3

60. Find the number of digits in square root of 9604

9604 के वर्गमूल में अंकों की संख्या बताये।

(A) 2 (B) 3

(C) 1 (D) 4

61. Find the value of $15\frac{5}{8} \times 16\frac{3}{8}$.

$15\frac{5}{8} \times 16\frac{3}{8}$ का मान ज्ञात कीजिए।

(A) $255\frac{55}{64}$ (B) $256\frac{9}{64}$

(C) $64\frac{9}{64}$ (D) $192\frac{11}{64}$

62. Find the value of $\left(21\frac{4}{7}\right)^2 + \left(22\frac{3}{7}\right)^2$.

$\left(21\frac{4}{7}\right)^2 + \left(22\frac{3}{7}\right)^2$ का मान ज्ञात कीजिए।

(A) $764\frac{25}{48}$ (B) $268\frac{21}{44}$

(C) $968\frac{18}{49}$ (D) $649\frac{28}{52}$

63. If $\sqrt{4624} = 68$, then $\sqrt{46.24} + \sqrt{0.4624} + \sqrt{0.004624} = ?$

यदि $\sqrt{4624} = 68$, तो $\sqrt{46.24} + \sqrt{0.4624} + \sqrt{0.004624} = ?$

(A) 7.458 (B) 7.548

(C) 7.648 (D) 7.854

64. Find the value of:/का मान ज्ञात कीजिए।

$\sqrt{150}-\sqrt{54}-\sqrt{24}$

(A) 75 (B) 1

(C) 0 (D) 72

65. If $\sqrt{2} + \sqrt{x} = \sqrt{3}$, then the value of x is equal to:

यदि $\sqrt{2} + \sqrt{x} = \sqrt{3}$, तो x का मान क्या है?

(A) $5 - 2\sqrt{6}$ (B) $-2\sqrt{6} - 5$

(C) $5 + 2\sqrt{6}$ (D) $2\sqrt{6} - 5$

66. If $\sqrt{144} = 12$, then $\frac{(\sqrt{.00000144})}{12}$

यदि $\sqrt{144} = 12$ है, तो $\frac{(\sqrt{.00000144})}{12}$

(A) 0.0012 (B) 0.001

(C) 0.0001 (D) 0.012

67. $\sqrt{0.059049} = ?$

(A) 2.43 (B) 24.3

(C) 0.0243 (D) 0.243

68. If $\sqrt{9} = 3$, then $\sqrt{27} \div \sqrt{9} = ?$

यदि $\sqrt{9} = 3$ है, तो $\sqrt{27} \div \sqrt{9} = ?$

(A) 3 (B) $\frac{3}{\sqrt{3}}$

(C) $3\sqrt{3}$ (D) $\sqrt{3}$

69. $\frac{\sqrt{0.0196}}{K} = 0.2$, then the value of K is-

$\frac{\sqrt{0.0196}}{K} = 0.2$, तो K का मान है-

(A) 4.9 (B) 0.7

(C) 0.49 (D) 7

70. If $\sqrt{1296} = 36$, then the value of $\sqrt{12.96} + \sqrt{0.1296} + \sqrt{0.001296} + \sqrt{0.00001296}$ is-

यदि $\sqrt{1296} = 36$ है, तो $\sqrt{12.96} + \sqrt{0.1296} + \sqrt{0.001296} + \sqrt{0.00001296}$ का मान है-

(A) 3.9996 (B) 0.39996

(C) 39.996 (D) 3.6996

71. If $a = 5 + 2\sqrt{6}$, then what is the value of $\left(\sqrt{a} - \frac{1}{\sqrt{a}}\right)$?

यदि a = 5 + 2√6 हो, तो $\left(\sqrt{a} - \frac{1}{\sqrt{a}}\right)$ का मान कितना है?

(A) $2\sqrt{2}$ (B) $3\sqrt{2}$

(C) $2\sqrt{3}$ (D) $3\sqrt{3}$

72. Find the value / मान ज्ञात कीजिए-

$\sqrt{900} + \sqrt{0.09} + \sqrt{0.000009}$

(A) 303.03 (B) 3030.3

(C) 3.0303 (D) 30.303

73. $\sqrt{\frac{1694}{?}} + 14 = 25$

(A) 11 (B) 13

(C) 12 (D) 14

74. The square root of $\frac{\left(3\frac{1}{4}\right)^4 - \left(4\frac{1}{3}\right)^4}{\left(3\frac{1}{4}\right)^2 - \left(4\frac{1}{3}\right)^2}$ is-

$\frac{\left(3\frac{1}{4}\right)^4 - \left(4\frac{1}{3}\right)^4}{\left(3\frac{1}{4}\right)^2 - \left(4\frac{1}{3}\right)^2}$ का वर्गमूल है-

(A) $5\frac{5}{12}$ (B) $7\frac{7}{12}$

(C) $1\frac{1}{12}$ (D) $1\frac{1}{7}$

75. The square root of $4a^2 + 4ab + b^2$ is-

$4a^2 + 4ab + b^2$ का वर्गमूल है-

(A) 2a + b (B) $2a^2b$

(C) $2a + b^2$ (D) 2ab

76. Which of the following gives the correct value of √2 ?

निम्नलिखित में से कौन √2 का सही मान बताता है ?

(A) $\frac{7}{5}$ (B) $\frac{13}{9}$

(C) $\frac{0.1}{0.07}$ (D) $\frac{7\sqrt{14}}{\sqrt{343}}$

77. Solve / हल करें : $\frac{3\sqrt{121} - \sqrt{361}}{\sqrt{529} + 2\sqrt{36}}$

(A) $\frac{3}{5}$ (B) $\frac{4}{7}$

(C) $\frac{1}{4}$ (D) $\frac{2}{5}$

78. The value of $\sqrt{\frac{0.081 \times 0.484}{0.0064 \times 6.25}}$ will be-

$\sqrt{\frac{0.081 \times 0.484}{0.0064 \times 6.25}}$ का मान होगा-

(A) 0.81 (B) 0.99

(C) 64 (D) 25

79. On subtracting $(78)^2$ from the square of a number, the answer is 6460, then what is this number?

एक संख्या के वर्ग में से $(78)^2$ को घटाने पर उत्तर 6460 आता है, यह संख्या क्या है ?

(A) 109 (B) 112

(C) 111 (D) 115

80. A student group decided to collect as much money per member of the group as the number of members. If the total amount collected is ₹ 28.09, then the number of members in the group is-

एक विद्यार्थी समूह ने सदस्यों की संख्या के बराबर समूह के प्रति सदस्य से, उतने पैसे संग्रह करना निश्चित किया। यदि कुल संगृहीत राशि रु. 28.09 हो, तो समूह में सदस्यों की संख्या है-

(A) 4.7 (B) 5.3

(C) 6.3 (D) 4.3

81. By what minimum number is 2744 multiplied to make the number a perfect square?

किस न्यूनतम संख्या से 2744 को गुणा करने पर प्राप्त संख्या एक पूर्ण वर्ग होगी?

(A) 5 (B) 7

(C) 8 (D) 14

82. What is the number whose square is equal to the difference of the squares of 75.15 and 60.12?

वह संख्या कौन-सी है जिसका वर्ग 75.15 और 60.12 के वर्गों के अंतर के बराबर है-

(A) 45.09 (B) 46.09

(C) 47.09 (D) 48.09

83. Find the least number which when subtracted from 1300 becomes a perfect square.
सबसे छोटी संख्या बताएं जिसे 1300 से घटाने पर वह पूर्ण वर्ग बन जाए-
(A) 2 (B) 3
(C) 4 (D) 6

84. 2904 is multiplied by which smallest number so that the resultant number will be a perfect square.
2904 को किस छोटी से छोटी संख्या से गुणा किया जाए कि वह पूर्ण वर्ग बन जाए ?
(A) 2 (B) 11
(C) 6 (D) 3

85. A man plants 7569 orange tree in his garden and he arranges all these trees in this way that the number of lines is equal to the number of trees in one line. How many lines are there in the garden?
एक व्यक्ति अपने बाग में 7569 संतरों के पेड़ लगाता है तथा उन्हें इस प्रकार व्यवस्थित करता है कि बाग में उतनी ही पंक्तियों रहें जितने एक पंक्ति में पेड़ हैं। बाग में कितनी पंक्तियाँ हैं?
(A) 79 (B) 87
(C) 85 (D) 83

86. Which of these numbers is not the sum of two squares?
इनमें से कौनसी संख्या दो वर्गों का योग नहीं है?
(A) 41 (B) 13
(C) 23 (D) 37

87. $\frac{1}{3}$ part of the square root of which number is equal to 0.005?
किस संख्या के वर्गमूल का $\frac{1}{3}$ भाग 0.005 है?
(A) 0.0025 (B) 0.00025
(C) 0.015 (D) 0.000225

88. $\frac{\sqrt{2}(2+\sqrt{3})}{\sqrt{3}(\sqrt{3}+1)} \times \frac{\sqrt{2}(2-\sqrt{3})}{\sqrt{3}(\sqrt{3}-1)} = ?$
(A) $3\sqrt{2}$ (B) $\frac{\sqrt{2}}{3}$
(C) $\frac{2}{3}$ (D) $\frac{1}{3}$

89. $\sqrt{24 \div 0.5 + 1} + \sqrt{18 \div 0.6 + 6} = ?$
(A) 13 (B) 15
(C) 11 (D) 17

90. $\left(\sqrt{63} + \sqrt{252}\right) \times \left(\sqrt{175} + \sqrt{28}\right) = ?$
(A) $16\sqrt{7}$ (B) 441
(C) 21 (D) $21\sqrt{7}$

91. Which of the following numbers is not a perfect cube?
निम्नलिखित में से कौन सी संख्या एक पूर्ण घन नहीं है?
(A) 64 (B) 216
(C) 243 (D) 512

92. Which of the following numbers is not a perfect cube?
निम्नलिखित में से कौन सी संख्या एक पूर्ण घन नहीं है?
(A) 343 (B) 625
(C) 125 (D) 729

93. The cube of 101 is –
101 का घनफल क्या है?
(A) 1020301 (B) 1130301
(C) 1000301 (D) 1030301

94. The value of 20^3 cm is.
20^3 सेमी का मान बताये-
(A) 8000 ml. m. (B) 20000 ml. m.
(C) 2000 ml. m. (D) 80000 ml. m.

95. The sum of the cubes of the numbers -28, 49 and -21 is equal to -
-28, 49 और -21 के घनों का योग क्या है?
(A) 81256 (B) 84196
(C) 86436 (D) None of these

96. The sum of the cubes of the numbers 20, –14 and –6 is equal to -
20, –14 और –6 के घनों का योग क्या है?
(A) 5040 (B) 4820
(C) 4580 (D) None of these

97. If the cube of a number is subtracted from $(153)^2$, then the number thus obtained is 1457. Find the number.
यदि किसी संख्या के घन को $(153)^2$ से घटाया जाता है, तो इस प्रकार प्राप्त संख्या 1457 है। संख्या का पता लगाएँ।
(A) 18 (B) 16
(C) 28 (D) 24

98. If the cube of a number is subtracted from $(121)^2$, then the number thus obtained is 8809. Find the number.
यदि किसी संख्या के घन को $(121)^2$ से घटाया जाता है, तो इस प्रकार प्राप्त संख्या 8809 है। संख्या का पता लगाएँ।
(A) 14 (B) 16
(C) 18 (D) 19

99. If the last digit of the square of a number is 1, then what will be the last digit of its cube?
यदि किसी संख्या के वर्ग का अंतिम अंक 1 है, तो उसके घन का अंतिम अंक कितना होगा?
(A) Only 9 (B) 1 or 9
(C) Any odd number (D) Only 1

100. Find the difference between largest and smallest integer whose cube is equal to itself.
सबसे बड़े और छोटे पूर्णांक के बीच अंतर ज्ञात कीजिए, जिनका घन स्वयं के बराबर है।
(A) –1 (B) 2
(C) 1 (D) 0

101. If the sum of a number is divided by its square and the quotient is subtracted from that number, then the number obtained is-
यदि किसी संख्या के धन को इसके वर्ग से विभाजित किया जाए और भागफल को उस संख्या से घटाया जाए, तो प्राप्त संख्या है-
(A) Same number (B) Zero
(C) 3/2 of the number
(D) 2/3 of the number

102. The sum of a positive number and its cube is 1740. What is the value of the number?
एक धनात्मक संख्या तथा उसके घन का योग 1740 है। संख्या का मान कितना है?
(A) 16 (B) 14
(C) 8 (D) 12

103. What will be value of $(45)^3 + (41)^3 = ?$
$(45)^3 + (41)^3$ का मान क्या होगा ?
(A) 160046 (B) 150036
(C) 80023 (D) 180256

104. What will be value of $(5.5)^3 - (4.5)^3 = ?$
$(5.5)^3 - (4.5)^3$ का मान क्या होगा ?
(A) 1 (B) 75
(C) 74.25 (D) 75.25

105. What will be value of $(2.5)^3 - (1.5)^3 = ?$
$(2.5)^3 - (1.5)^3$ का मान क्या होगा ?
(A) 1 (B) 12.25
(C) 22.25 (D) 18.75

106. The simplified value of $[(0.111)^3 + (0.222)^3 - (0.333)^3 + (0.333)^3 (0.222)^2]$ is -
$[(0.111)^3 + (0.222)^3 - (0.333)^3 + (0.333)^3 (0.222)^2]$ सरलीकृत मान है-
(A) 0.999 (B) 0
(C) 0.888 (D) 111

107. If $(1^3 + 2^3 + 3^3 + 4^3 + 5^3) = 225$, then the value of $(2^3 + 4^3 + 6^3 + 8^3 + 10^3)$ will be-
यदि $(1^3 + 2^3 + 3^3 + 4^3 + 5^3) = 225$ दिया हो, तो $(2^3 + 4^3 + 6^3 + 8^3 + 10^3)$ का मान होगा-
(A) 450 (B) 900
(C) 1800 (D) $(225)^3$

108. If $1^3 + 2^3 + 3^3 + ... + 10^3 = 3025$, then $2^3 + 4^3 + 6^3 + ... + 20^3 = ?$

$1^3 + 2^3 + 3^3 + ... + 10^3 = 3025$ दिया हो, तो $2^3 + 4^3 + 6^3 + ... + 20^3$ बराबर होगा–

(A) 6050 (B) 9075

(C) 12100 (D) 24200

109. $99 \times 21 - \sqrt[3]{?} = 1968$

(A) 1367631 (B) 111

(C) 1366731 (D) 1367

110. The cube root of .000729 is -

.000729 का घनमूल है -

(A) .9 (B) .09

(C) .009 (D) None of these

111. $\sqrt[3]{333 + \sqrt[3]{987 + \sqrt[3]{2197}}} = ?$

(A) 21 (B) 18

(C) 7 (D) 3

112. $\sqrt[3]{-2300} \times \sqrt[3]{5290} = ?$

(A) –529 (B) –270

(C) 230 (D) –230

113. $\frac{\sqrt[3]{8}}{\sqrt{16}} \div \sqrt{\frac{100}{49}} \times \sqrt[3]{125} = ?$

(A) 7 (B) $1\frac{3}{4}$

(C) $\frac{7}{100}$ (D) $\frac{4}{7}$

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

(A) $1\frac{2}{5}$ (B) $1\frac{3}{5}$

(C) $1\frac{4}{5}$ (D) $2\frac{2}{5}$

115. $\sqrt[3]{\sqrt{.000064}} = ?$

(A) .02 (B) .2

(C) 2 (D) None of these

116. $2\sqrt[3]{32} - 3\sqrt[3]{4} + \sqrt[3]{500} = ?$

(A) $2\sqrt[3]{6}$ (B) $3\sqrt{24}$

(C) $6\sqrt[3]{4}$ (D) 916

117. Cube root of 74088 is 42, then the value of $\sqrt[3]{74.088} + \sqrt[3]{0.074088} + \sqrt[2]{0.001764}$ is equal to-

74088 का घनमूल 42 है, तो $\sqrt[3]{74.088} + \sqrt[3]{0.074088} + \sqrt[2]{0.001764}$ का मान बराबर है–

(A) 4.42 (B) 6.48

(C) 5.04 (D) 5.42

118. The value of $\frac{\sqrt[3]{-2744} \times \sqrt[3]{-216}}{\sqrt[3]{\frac{64}{729}}}$ is:

The value of $\frac{\sqrt[3]{-2744} \times \sqrt[3]{-216}}{\sqrt[3]{\frac{64}{729}}}$ is

(A) 164 (B) 152

(C) 189 (D) 156

119. $(32)^3 + (79)^3 - (111)^3 + 3 \times 32 \times 79 \times 111$ is equal to / के बराबर है?

(A) 10000 (B) 0

(C) 30007 (D) 1

120. A pair in which the square of one number is equal to the cube of the other number is.

ऐसा युग्म बताओं जिसमें एक संख्या का वर्ग दूसरी संख्या के घन के बराबर है।

(A) 2, 4 (B) 3, 9

(C) 4, 8 (D) 5, 25

121. If p = 100, then $\sqrt[3]{p(p^2 + 3p + 3) + 1} = ?$

यदि p = 100 हो, तो $\sqrt[3]{p(p^2 + 3p + 3) + 1} = ?$

(A) 99 (B) 1000

(C) 101 (D) 100

122. The smallest number in which the product obtained by multiplying 54925 is a perfect cube, is-

वह छोटी से छोटी संख्या, जिसमें 54925 को गुणा करने पर प्राप्त गुणनफल एक पूर्ण घन हो, है–

(A) 2 (B) 3

(C) 5 (D) 6

123. What is the smallest number to be added to 491 so that the sum is a perfect cube number?
491 में सबसे छोटी कौनसी संख्या जोड़ी जाए, ताकि योगफल एक पूर्ण घन संख्या प्राप्त हो?
(A) 25 (B) 19
(C) 17 (D) 21

124. The smallest positive integer n, for which 864n is a perfect cube, is –
सबसे छोटा धनात्मक पूर्णांक n, जिसके लिए 864n एक पूर्ण घन है, है -
(A) 1 (B) 2
(C) 3 (D) 4

125. Which of the following numbers is a perfect squares as well as a perfect cube?
निम्नलिखित में से कौनसी संख्या पूर्ण वर्ग भी है और पूर्ण घन भी?
343, 125, 81, 729
(A) 81 (B) 125
(C) 343 (D) 729

126. $\left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\ldots\ldots\left(1-\frac{1}{10}\right)=?$
(A) $\frac{1}{10}$ (B) $\frac{1}{20}$
(C) 1 (D) 0

127. Solve the following.
निम्नलिखित को हल कीजिए।
$\left\{1-\frac{1}{4}\right\}\left\{1-\frac{2}{4}\right\}\ldots\left\{1-\frac{5}{4}\right\}\left\{1-\frac{6}{4}\right\}=?$
(A) $\frac{3}{256}$ (B) 0
(C) $-\frac{3}{256}$ (D) $\frac{3}{64}$

128. $\left(2-\frac{1}{3}\right)\left(2-\frac{3}{5}\right)\left(2-\frac{5}{7}\right)\ldots\left(2-\frac{997}{999}\right)=?$
(A) $\frac{5}{999}$ (B) $\frac{1001}{999}$
(C) $\frac{1001}{3}$ (D) None of these

129. $555\frac{1}{7}+555\frac{2}{7}+555\frac{3}{7}+555\frac{4}{7}+555\frac{5}{7}+555\frac{6}{7}=?$
(A) 3330 (B) 3351
(C) 3357 (D) 3333

130. $625\frac{2}{17}+625\frac{3}{17}+625\frac{5}{17}+625\frac{8}{17}+625\frac{16}{17}=?$
(A) 3375 (B) 3127
(C) 3105 (D) 3247

131. $\frac{1}{1\times2\times3}+\frac{1}{2\times3\times4}+\frac{1}{3\times4\times5}+\frac{1}{4\times5\times6}=?\times\frac{21}{5}\times\frac{11}{60}$
(A) $\frac{33}{10}$ (B) $\frac{5}{33}$
(C) $\frac{10}{33}$ (D) $\frac{7}{30}$

132. $\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\left(1-\frac{1}{5}\right)\ldots\ldots\left(1-\frac{1}{25}\right)=?$
(A) $\frac{2}{25}$ (B) $\frac{1}{25}$
(C) $1\frac{19}{25}$ (D) $\frac{4}{25}$

133. $\left(\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\cdots\frac{1}{9\times10}\right)=?$
(A) 0.1 (B) 1.1
(C) 0.9 (D) 0.09

134. $\frac{3}{1^{2}.2^{2}}+\frac{5}{2^{2}.3^{2}}+\frac{7}{3^{2}.4^{2}}+\frac{9}{4^{2}.5^{2}}+\frac{11}{5^{2}.6^{2}}+\frac{13}{6^{2}.7^{2}}+\frac{15}{7^{2}.8^{2}}+\frac{17}{8^{2}.9^{2}}+\frac{19}{9^{2}.10^{2}}=?$
(A) $\frac{1}{100}$ (B) $\frac{99}{100}$
(C) $\frac{101}{100}$ (D) 1

135. $\left(1-\frac{1}{5}\right)\left(1-\frac{1}{6}\right)\left(1-\frac{1}{7}\right)\ldots\ldots\left(1-\frac{1}{80}\right)=?$
(A) 0 (B) $\frac{1}{20}$
(C) $\frac{1}{25}$ (D) $\frac{4}{25}$

136. $\left(1-\frac{1}{2^{2}}\right)\left(1-\frac{1}{3^{2}}\right)\ldots\ldots\left(1-\frac{1}{9^{2}}\right)\left(1-\frac{1}{10^{2}}\right)=?$
(A) $\frac{5}{12}$ (B) $\frac{1}{2}$
(C) $\frac{11}{20}$ (D) $\frac{7}{10}$

137. $\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\ldots\ldots\left(1+\frac{1}{100}\right)=?$
(A) 52.5 (B) 40.5
(C) 50.5 (D) 101

138. $\frac{1}{20}+\frac{1}{30}+\frac{1}{42}+\frac{1}{56}+\frac{1}{72}+\frac{1}{90}=?$
(A) $\frac{7}{20}$ (B) $\frac{1}{10}$
(C) $\frac{3}{5}$ (D) $\frac{3}{20}$

139. $\left(\frac{1}{1\times4}+\frac{1}{4\times7}+\frac{1}{7\times10}+\frac{1}{10\times13}+\frac{1}{13\times16}\right)=?$
(A) $\frac{1}{3}$ (B) $\frac{3}{8}$
(C) $\frac{5}{16}$ (D) $\frac{41}{7280}$

140. $1+\frac{1}{4\times3}+\frac{1}{4\times3^2}+\frac{1}{4\times3^3}=?$

(A) $\frac{121}{108}$ (B) $\frac{3}{2}$

(C) $\frac{31}{2}$ (D) None of these

141. $\frac{1}{(2^2-1)}+\frac{1}{(4^2-1)}+\frac{1}{(6^2-1)}+\cdots+\frac{1}{(20^2-1)}=?$

(A) $\frac{9}{19}$ (B) $\frac{10}{19}$

(C) $\frac{10}{21}$ (D) $\frac{11}{21}$

142. $\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\frac{1}{30}+\frac{1}{42}+\frac{1}{56}+\frac{1}{72}+\frac{1}{90}+\frac{1}{110}+\frac{1}{132}=?$

(A) $\frac{7}{8}$ (B) $\frac{11}{12}$

(C) $\frac{15}{16}$ (D) $\frac{17}{18}$

143. Find the value of the expression $\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)\ldots\ldots\left(1+\frac{1}{n-1}\right)$?

$\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)\ldots\ldots\left(1+\frac{1}{n-1}\right)$ व्यंजक का मान ज्ञात कीजिये?

(A) $\left(\frac{n}{3}\right)$ (B) $\left(\frac{1}{3}\right)$

(C) $\left(1+\frac{1}{n}\right)$ (D) $\left(\frac{n}{n-1}\right)$

144. Find the value of the following?

निम्न का मान ज्ञात कीजिये?

$\frac{1}{2\times4}+\frac{1}{4\times6}+\frac{1}{6\times8}+\cdots+\frac{1}{48\times50}$:

(A) 0.48 (B) 0.42

(C) 0.46 (D) 0.24

145. $\left(1+\frac{1}{x}\right)\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)=?$

(A) $1+\frac{1}{x+4}$ (B) x + 4

(C) $\frac{1}{x}$ (D) $\frac{x+4}{x}$

146. $(25)^4 \div (5)^5 = ?$

(A) 5 (B) 25

(C) 125 (D) 625

147. $\{(-2)^{(-2)}\}^{(-2)}$ is equal to-

$\{(-2)^{(-2)}\}^{(-2)}$ बराबर है-

(A) 16 (B) 8

(C) −8 (D) −16

148. Find the value of n in given equation.

दिए गए समीकरण में n का मान ज्ञात कीजिए।

$27^{1.5}\times9^{1.25}\div3^5=3^n$

(A) 6 (B) 4

(C) 9 (D) 2

149. If $\left(\frac{2}{3}\right)^{x+1}=\left(\frac{3}{2}\right)^{x-1}$, then x = ?

यदि $\left(\frac{2}{3}\right)^{x+1}=\left(\frac{3}{2}\right)^{x-1}$, तो x = ?

(A) 2 (B) -1

(C) 0 (D) 3

150. If $\frac{9^m\times3^5\times27^3}{3\times81^4}=3^9$, then find the value of m?

यदि $\frac{9^m\times3^5\times27^3}{3\times81^4}=3^9$ है, तो m का मान ज्ञात कीजिये?

(A) 5 (B) 7

(C) 6 (D) 12

151. Find the value of ? in the following?

निम्न में ? का मान ज्ञात कीजिये?

$6^{1.2}\times36^{?}\times30^{2.4}\times25^{1.3}=30^5$

(A) 2.6 (B) 0.7

(C) 1.4 (D) 0.1

152. If $\sqrt{5^n}$ = 5, then n = ?

यदि $\sqrt{5^n}$ = 5, तो n = ?

(A) 4 (B) 5

(C) 2 (D) 3

153. If $2^x=4^{y+1}$ and $3^y=3^{x-9}$, then the values of x and y respectively are:

यदि $2^x=4^{y+1}$ और $3^y=3^{x-9}$, तो क्रमश: x और y के मान हैं:

(A) 16, 7 (B) -16, 7

(C) -16, -7 (D) 16, -7

154. If $\sqrt{3^n}=\sqrt{6561}$, then the value of n is

यदि $\sqrt{3^n}=\sqrt{6561}$, तो n का मान है

(A) 6 (B) 3

(C) 8 (D) 4

155. If $a^{2x}=b,\ b^{2y}=c,\ c^{2z}=a$ then the value of xyz is:

अगर $a^{2x}=b,\ b^{2y}=c,\ c^{2z}=a$ तो xyz का मान है:

(A) 1 (B) 8

(C) 0 (D) $\frac{1}{8}$

156. If $\left(\frac{3}{5}\right)^{2x-1} \times \left(\frac{3}{5}\right)^{4} = \left(\frac{3}{5}\right)^{15}$, then find the value of x.
यदि $\left(\frac{3}{5}\right)^{2x-1} \times \left(\frac{3}{5}\right)^{4} = \left(\frac{3}{5}\right)^{15}$, तो x का मान ज्ञात करें।
(A) 12 (B) 5
(C) 6 (D) 0

157. What is the value of x in the following equation?
निम्नलिखित समीकरण में x का मान क्या है?
$3^{2x+1} - 3^{x} = 3^{x+3} - 3^{2}$
(A) 3, -1 (B) 4, -1
(C) 2, -1 (D) 4, -2

158. Find the value of $\left(\frac{2}{7}\right)^{-3} \times \left(\frac{2}{7}\right)^{-5} = \left(\frac{2}{7}\right)^{-3m+1}$?
$\left(\frac{2}{7}\right)^{-3} \times \left(\frac{2}{7}\right)^{-5} = \left(\frac{2}{7}\right)^{-3m+1}$ का मान ज्ञात कीजिये?
(A) 5 (B) 3
(C) -2 (D) -3

159. Find the value of $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$.
$\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$ का मान ज्ञात कीजिये-
(A) $7^{\frac{5}{3}}$ (B) $7^{\frac{3}{5}}$
(C) $7^{\frac{4}{15}}$ (D) $7^{-\frac{2}{15}}$

160. Find the value of the following?
निम्न का मान ज्ञात कीजिये?
$\left(\frac{2020}{2000}\right)^{-2008} \times \left(\frac{2020}{2000}\right)^{2008} \times 2020$
(A) 0 (B) 220
(C) 2020 (D) 2220

161. If $(3^x)(3^y) = 9$ and $(25^x)(5^y) = 625$, then what is (x, y)?
यदि $(3^x)(3^y) = 9$ और $(25^x)(5^y) = 625$, तो (x, y) क्या है?
(A) (2, 4) (B) (2, 0)
(C) (3, -5) (D) (1, 2)

162. Choose the number that should replace the question mark (?) in the following equation.
निम्नलिखित समीकरण में प्रश्नवाचक चिन्ह (?) को प्रतिस्थापित करने वाली संख्या का चयन कीजिए।
$47^{7.5} \div 47^{3/2} \times 47^{-3} = \left(\sqrt{47}\right)^{?}$
(A) 2.5 (B) 5
(C) 6 (D) 4

163. If $25^{3.8} \times 5^{4.2} \div 5^{6.4} = 25^{x}$, then the value of x is:
यदि $25^{3.8} \times 5^{4.2} \div 5^{6.4} = 25^{x}$, तो x का मान है:
(A) 2.7 (B) 1.2
(C) 2 (D) 1.4

164. If $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$, then the values of x and y are:
अगर $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$, तो x और y के मान होंगे:
(A) (-16, 7) (B) (16, -7)
(C) (7, 16) (D) (16, 7)

165. $(3^2)^5 = ?$
(A) 3^7 (B) 3^5
(C) 3^{10} (D) 3^2

166. $((5^3)^3)^2 = ?$
(A) 5^5 (B) 5^{18}
(C) 5^{15} (D) 5^{12}

167. $3^{2^5} = ?$
(A) 3^{16} (B) 3^{10}
(C) 3^{32} (D) 3^5

168. If $(6)^{\sqrt[4]{x}} + (8)^{\sqrt[4]{x}} = (10)^{\sqrt[4]{x}}$, then the value of x is-
यदि $(6)^{\sqrt[4]{x}} + (8)^{\sqrt[4]{x}} = (10)^{\sqrt[4]{x}}$ हो, तो x का मान है-
(A) 8 (B) 2
(C) 16 (D) 4

169. The value of $\frac{1}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{1}{(32)^{-\frac{1}{5}}}$ is
$\frac{1}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{1}{(32)^{-\frac{1}{5}}}$ का मान है
(A) 102 (B) 105
(C) 107 (D) 109

170. The smallest value among -0.2, $(-0.2)^2$, $(-0.2)^3$ and $(-0.2)^4$ is-

-0.2, $(-0.2)^2$, $(-0.2)^3$ और $(-0.2)^4$ में से सबसे छोटा मान है-

(A) -0.2 (B) $(-0.2)^2$

(C) $(-0.2)^3$ (D) $(-0.2)^4$

171. Find the compound root form of $\sqrt{1350}$.

$\sqrt{1350}$ का मिश्रित करणी रूप ज्ञात कीजिए।

(A) $14\sqrt{6}$ (B) $13\sqrt{6}$

(C) $12\sqrt{6}$ (D) $15\sqrt{6}$

172. If $\sqrt{3}$ = 1.732, what is the approximate value of $\frac{1}{\sqrt{3}}$?

यदि $\sqrt{3}$ = 1.732 हो, तो $\frac{1}{\sqrt{3}}$ का मान लगभग कितना होगा?

(A) 0.617 (B) 0.313

(C) 0.577 (D) 0.173

173. If $\sqrt{2}$ =1.4142, then the value of $\frac{7}{3+\sqrt{2}}$ is

यदि $\sqrt{2}$ =1.4142, तो $\frac{7}{3+\sqrt{2}}$ का मान होगा-

(A) 1.5858 (B) 4.4142

(C) 3.4852 (D) 3.5858

174. If $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$, then 'a' is equal to-

यदि $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$, तो a के बराबर है-

(A) – 6 (B) 6

(C) – 11 (D) 11

175. Arrange the numbers in descending order-

संख्याओं को अवरोही क्रम में व्यवस्थित कीजिए-

$2\sqrt{11}, 4\sqrt{3}, 3\sqrt{5}, 5\sqrt{2}$

(A) $5\sqrt{2}, 4\sqrt{3}, 3\sqrt{5}, 2\sqrt{11}$

(B) $3\sqrt{5}, 4\sqrt{3}, 5\sqrt{2}, 2\sqrt{11}$

(C) $4\sqrt{3}, 3\sqrt{5}, 2\sqrt{11}, 5\sqrt{2}$

(D) $2\sqrt{11}, 4\sqrt{3}, 3\sqrt{5}, 5\sqrt{2}$

176. Simplify: $\frac{\sqrt{32}-\sqrt{18}}{\sqrt{50}+\sqrt{8}}$

सरल कीजिए: $\frac{\sqrt{32}-\sqrt{18}}{\sqrt{50}+\sqrt{8}}$

(A) 7 (B) $\frac{1}{7}$

(C) $\frac{\sqrt{2}}{7}$ (D) $2\sqrt{2}$

177. $\frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$ is equal to-

$\frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$ बराबर है-

(A) $6 + \sqrt{35}$ (B) 1

(C) $6 - \sqrt{35}$ (D) 2

178. $\sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}}$ = ?

(A) $2^{\frac{9}{2}}$ (B) $2^{\frac{11}{2}}$

(C) $2^{\frac{31}{32}}$ (D) $2^{\frac{39}{31}}$

179. $\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}$ = ?

(A) $2^{\frac{9}{2}}$ (B) $2^{\frac{15}{16}}$

(C) $2^{\frac{31}{32}}$ (D) $2^{\frac{7}{8}}$

180. If $\sqrt{6}$ = 2.45, then what is the value of $\frac{\sqrt{2}}{3\sqrt{3}}$?

यदि $\sqrt{6}$ = 2.45 हो, तो $\frac{\sqrt{2}}{3\sqrt{3}}$ का मान कितना है?

(A) 0.271 (B) 0.272

(C) $0.27\overline{2}$ (D) None of these

181. Find the value of $\frac{\sqrt{5}}{3-\sqrt{2}}$ -

$\frac{\sqrt{5}}{3-\sqrt{2}}$ का मान ज्ञात कीजिए-

(A) $\sqrt{5}$ (B) 5

(C) $\sqrt{10}$ (D) $\frac{3\sqrt{5}+\sqrt{10}}{7}$

182. Find the value of $\frac{4+\sqrt{2}}{\sqrt{2}+1}$?

$\frac{4+\sqrt{2}}{\sqrt{2}+1}$ का मान ज्ञात कीजिये?

(A) $2 - 3\sqrt{2}$ (B) $3\sqrt{2} - 2$

(C) $3\sqrt{2}$ (D) $3\sqrt{2} + 2$

183. What is the value of $\frac{\sqrt{5}+1}{\sqrt{5}-1}$?

$\frac{\sqrt{5}+1}{\sqrt{5}-1}$ का मान क्या है?

(A) $\frac{3-\sqrt{5}}{2}$ (B) $\frac{\sqrt{5}}{2}$

(C) $\frac{3\sqrt{5}}{2}$ (D) $\frac{3+\sqrt{5}}{2}$

184. Find the positive value of $\sqrt{12+\sqrt{12+\sqrt{12+\cdots}}}$

$\sqrt{12+\sqrt{12+\sqrt{12+\cdots}}}$ का धनात्मक मान ज्ञात कीजिए।

(A) 12 (B) 2

(C) 3 (D) 4

185. Find the positive value of $\sqrt{6+\sqrt{6+\sqrt{6+\cdots}}}$.

$\sqrt{6+\sqrt{6+\sqrt{6+\cdots}}}$ का धनात्मक मान ज्ञात कीजिए।

(A) 6 (B) 2

(C) 3 (D) 4

186. Find the value of $\frac{1+\sqrt{3}}{1-\sqrt{3}}+\frac{1-\sqrt{3}}{1+\sqrt{3}}$

$\frac{1+\sqrt{3}}{1-\sqrt{3}}+\frac{1-\sqrt{3}}{1+\sqrt{3}}$ का मान ज्ञात कीजिए

(A) -4 (B) $-2\sqrt{3}$

(C) $2\sqrt{3}$ (D) 4

187. Solve the given equation?

दिए गए समीकरण को हल कीजिये?

$\frac{3+\sqrt{5}}{3-\sqrt{5}}+\frac{3-\sqrt{5}}{3+\sqrt{5}}+\frac{\sqrt{5}-1}{\sqrt{5}+1}=?$

(A) $\frac{17-\sqrt{5}}{2}$ (B) $\frac{13-\sqrt{5}}{2}$

(C) $\frac{15-\sqrt{5}}{2}$ (D) $\frac{16-\sqrt{5}}{2}$

188. Find the value of the following

निम्नलिखित का मान ज्ञात कीजिये

$\frac{2+\sqrt{5}}{2-\sqrt{5}}+\frac{2-\sqrt{5}}{2+\sqrt{5}}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$

(A) $\frac{-31-\sqrt{5}}{2}$ (B) $\frac{-33-\sqrt{5}}{2}$

(C) $\frac{-32-\sqrt{5}}{2}$ (D) $\frac{-35-\sqrt{5}}{2}$

189. Find the value of $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}}-\frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}-\frac{6}{\sqrt{8}-\sqrt{12}}$

$\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}}-\frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}-\frac{6}{\sqrt{8}-\sqrt{12}}$ का मान ज्ञात कीजिए

(A) $\sqrt{3}+\sqrt{2}$ (B) $\sqrt{3}-\sqrt{2}$

(C) $5\sqrt{3}$ (D) 1

190. If $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}=a+b\sqrt{6}$, then which of the following will be the values of a and b?

यदि $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}=a+b\sqrt{6}$, तब a तथा b का मान निम्न में कौन से होंगे?

(A) $\frac{8}{15},\frac{4}{15}$ (B) $\frac{3}{11},\frac{4}{33}$

(C) $\frac{9}{10},\frac{2}{5}$ (D) $\frac{3}{5},\frac{4}{15}$

191. $\sqrt{56+\sqrt{56+\sqrt{56+\sqrt{56+\sqrt{\ldots\ldots}}}}}=?$

(A) 7 (B) 8

(C) $\sqrt{56}$ (D) 4

192. $\sqrt{8-2\sqrt{15}}$ is equal to-

$\sqrt{8-2\sqrt{15}}$ बराबर है-

(A) $3-\sqrt{5}$ (B) $\sqrt{5}-\sqrt{3}$

(C) $5-\sqrt{3}$ (D) $\sqrt{5}+\sqrt{3}$

193. The value of $\sqrt{5\sqrt{5\sqrt{5\sqrt{5}\ldots\ldots\ldots}}}$ is-

$\sqrt{5\sqrt{5\sqrt{5\sqrt{5}\ldots\ldots\ldots}}}$ का मान है-

(A) 1 (B) 2.5

(C) 5 (D) 25

194. The value of $\sqrt{4\sqrt{4\sqrt{4\sqrt{4}\ldots\ldots\ldots}}}$ is-

$\sqrt{4\sqrt{4\sqrt{4\sqrt{4}\ldots\ldots\ldots}}}$ का मान है-

(A) 1 (B) 4

(C) 2 (D) 16

195. If $\sqrt{x+4\sqrt{x+4\sqrt{x+4\sqrt{x+4}\ldots}}}=x$, then find the value of x.

यदि $\sqrt{x+4\sqrt{x+4\sqrt{x+4\sqrt{x+4}\ldots}}}=x$ हो, तो x का मान बताओ।

(A) 4 (B) 3

(C) 2 (D) 5

* * *

SIMPLIFICATION SOLUTION

1. (C) $56 \div 7 \times (35 - 45 \div 3) \div 4$
$56 \div 7 \times (35 - 15) \div 4$
$56 \div 7 \times 20 \div 4 = 8 \times 5 = 40$

2. (D) $4 \times [3 \div 4 \times \{4 \times 3 \div (3 \times 3)\}]$
$= 4 \times [3 \div 4 \times \{4 \times 3 \div 9\}]$
$= 4 \times \left[3 \div 4 \times \left\{4 \times \frac{3}{9}\right\}\right]$
$= 4 \times \left[3 \div 4 \times \frac{4}{3}\right]$
$= 4 \times \left[\frac{3}{4} \times \frac{4}{3}\right] = 4 \times 1 \Rightarrow 4$

3. (A) $10 - [5 - \{6 - (5 - 4 - 3)\}]$
$= 10 - [5 - \{6 - (-2)\}]$
$= 10 - [5 - \{6 + 2\}] = 10 - [-3]$
$= 10 + 3 = 13$

4. (A) $108 \div 18 \times (55 - 35 \div 5) \div 3 = x$
$6 \times (55 - 7) \div 3 = x$
$6 \times 48 \div 3 = x$
$96 = x$

5. (A) $[\{(161 + (19 - 2) + 1)\} - 3]$
$= [\{(161 + 17 + 1)\} - 3]$
$= [179 - 3] = 176$

6. (A) $10 + \{26 - 15 \times (20 - 5 \div 2 \times \overline{(7-5)})\}$
$= 10 + \{26 - 15 \times (20 - 5 \div 2 \times 2)\}$
$= 10 + \{26 - 15 \times 15\}$
$= 10 + \{26 - 225\}$
$= -225 + 36 = -189$

7. (A) $154 \div [30 - \{33 - (25 - 176 \div \overline{(4 \times 4)})\}]$
$= 154 \div [30 - \{33 - (25 - 176 \div 16)\}]$
$= 154 \div [30 - \{33 - (25 - 11)\}]$
$= 154 \div [30 - \{33 - 14\}]$
$= 154 \div [30 - 19]$
$= 154 \div 11 = 14$

8. (B) $(-7)\ [44 \div \{7 - (-4)\}]$
$= (-7)\ [44 \div \{7 + 4\}]$
$= (-7)\ \left[\frac{44}{11}\right]$
$= (-7) \times 4 = -28$

9. (D) $1218 \text{ का } \frac{4}{5} \text{ का } \frac{4}{7} = 1218 \times \frac{4}{5} \times \frac{4}{7}$
$= \frac{174 \times 16}{5} \Rightarrow 556.8$

10. (B) $6 + 6 \div 6 + 6 \times 6 - 6$
$= 6 + 1 + 36 - 6 = 37$

11. (D) $450 \times \frac{78}{100} + 250 \times \frac{x}{100} = 441$
$351 + \frac{5x}{2} = 441$
$\frac{5x}{2} = 441 - 351$
$x = \frac{90 \times 2}{5} \Rightarrow 36$

12. (D) $(800 \div 64) \times (1296 \div 36) = \frac{800}{64} \times \frac{1296}{36}$
$= 450$

13. (C) $240 \div 8 \times 512 \div 4$
$= 30 \times 128 = 3840$

14. (A) $1800 \div (11 \times 24 \div 8 \times 3 - 69)^2$
$= 1800 \div (11 \times 3 \times 3 - 69)^2$
$= 1800 \div (99 - 69)^2$
$= 1800 \div (30)^2$
$= 1800 \div 900 = 2$

15. (D) $30 - (3 \times 4 + 15 \div 3) + 8 \times 3 \div 6$
$= 30 - (12 + 5) + 8 \times \frac{1}{2}$
$= 30 - 17 + 4$
$= 34 - 17 = 17$

16. (C) $8432 + 937 + 260 - x = 5605 + 713$
$9629 - x = 6318$
$x = 3311$

17. (B) $3 + [3 \times \{3 - (3 + 3) \div 6\}]$
$= 3 + [3 \times \{3 - 1\}]$
$= 3 + [3 \times 2]$
$= 3 + 6 = 9$

18. (B) $32 \div 2 \div 2 \div 2 \div 2$
$= 32 \times ½ \times ½ \times ½ \times ½$
$= 2$

19. (B) $= 5 + 5 \times 5 \div (5 \times 5) \times 5$
$= 5 + 5 \times 5 \div 25 \times 5$
$= 5 + 5 = 10$

20. (A) $81 - [20 + 7 \times (30 - 3 \times 9)]$
$= 81 - [20 + 7 \times (30 - 27)]$
$= 81 - [20 + 7 \times 3]$
$= 81 - [20 + 21]$
$= 81 - 41 = 40$

21. (D) $= - 5 \{-5-(-5-2)-5\}$
$= - 5 \{- 5 + 7 - 5\}$
$= - 5 \{-3\} = 15$

22. (C) $(243)^2 \div (27)^2 \times 16 \div 8$
$= \frac{(243)^2}{(27)^2} \times 2$
$= \left(\frac{243}{27}\right)^2 \times 2$
$= (9)^2 \times 2$
$= 81 \times 2 = 162$

23. (B) $49 + 1331 \div 121 - 72 - 5$
$= 49 + 11 - 77$
$= 49 - 66 = -17$

24. (B) $11 + 11 \div 11 + 11 \times 11 - 11$
$= 11 + 1 + 121 - 11$
$= 1 + 121$
$= 122$

25. (A) $245 - [135 - \{84 \div 4 \text{ of } 3 - (11 - 4)\}]$
$245 - [135 - \{84 \div 12 - 7\}]$
$245 - [135 - \{7 - 7\}]$
$245 - 135 \Rightarrow 110$

26. (B) $80 \div (16 \div 2) + \{[(6 \times 5) - 15 \times 2 + 4] - 12\}$
$80 \div 8 + \{[30 - 30 + 4] - 12\}$
$10 + \{4 - 12\}$
$10 - 8 = 2$

27. (C) $1800 \div 10 \times \{45 \div (17 - 2)\} \times 2 + \{- 2(1 + 2)\}$
$180 \times \{45 \div 15\} \times 2 + \{- 2 \times 3\}$
$180 \times 3 \times 2 - 6$
$1080 - 6 \Rightarrow 1074$

28. (B) $P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2$
$= 2 + 0.2 \div 0.4 - 1 \times 2$
$= 2 + \frac{0.2}{0.4} - 1 \times 2$
$= 2 + \frac{1}{2} - 2 = \frac{1}{2}$
$Q = 2 - 0.2 \div (0.2 \times 2) - \frac{1}{2} \times 2$
$= 2 - 0.2 \div 0.4 - \mathbf{1/2} \times 2$
$= 2 - \frac{1}{2} - 1 = \frac{1}{2}$
$\therefore P/Q = \frac{\frac{1}{2}}{\frac{1}{2}} = 1$

29. (D) $P = 0.3 \times 0.3 + 0.03 \times 0.03 - 0.6 \times 0.03 = (0.3 - 0.03)^2 = 0.27^2$
$Q = 0.54$
$\frac{P}{Q} = \frac{0.27^2}{0.54} = \frac{27}{200} = 0.135$

30. (D) $\Rightarrow 3x + 4 \times 8 \div 9 = x \div 3 - 1$
$\Rightarrow x = -\frac{41 \times 3}{9 \times 8}$
$\Rightarrow x = -\frac{41}{24}$

31. (A) $(24 + 18)(24 - 18) = ?$
$42 \times 6 = ?$
$? = 252$

32. (D) $(36 + 35)(36 - 35) = ?$
$71 \times 1 = ?$
$? = 71$

33. (C) $(25.732 + 15.732)(25.732 - 15.732) = ?$
$41.464 \times 10 = ?$
$? = 414.64$

34. (C) $(254 + 252)(254 - 252) = ?$
$506 \times 2 = ?$
$? = 1012$

35. (B) $(32 + 18)^2 = (50)^2$
$= 2500$

36. (B) $(10.5 + 7.5)^2$

$= (18)^2 = 324$

37. (C) $28.4 + 24.4 = 52.8$

38. (B) $= \frac{(a+b)^2 + (a-b)^2}{a^2 + b^2}$

$= \frac{2(a^2 + b^2)}{(a^2 + b^2)} = 2$

39. (D) $= \frac{(a+b)^2 - (a-b)^2}{ab} = \frac{4ab}{ab} = 4$

40. (D) $= \left(\frac{a^3 + b^3}{a^2 + b^2 - ab}\right) = (a + b)$

$= (375 + 225) = 600$

41. (A) $= \left(\frac{a^2 + ab + b^2}{a^3 - b^3}\right) = \left(\frac{1}{a-b}\right)$

$\left(\frac{1}{158 - 153}\right) = \frac{1}{5}$

42. (C) $2a = 2 \times 216 = 432$

$2b = 2 \times 144 = 288$

$? = \frac{(a+b)2 - (a-b)2}{2a \times 2b} = \frac{a^2 + b^2 + 2ab - a^2 - b^2 + 2ab}{4ab}$

$= \frac{4ab}{4ab} = 1$

43. (B) $\frac{5.47 \times 5.47 - 4.53 \times 4.53}{0.94} = \frac{(5.47)^2 - (4.53)^2}{0.94}$

$= \frac{(5.47 - 4.53)(5.47 + 4.53)}{0.94} = \frac{0.94 \times 10}{0.94} = 10$

44. (A) $\frac{0.3^4 - 0.2^4}{0.3^2 + 0.2^2}$

$= \frac{(0.3^2 + 0.2^2)(0.3^2 - 0.2^2)}{0.3^2 + 0.2^2}$

$= 0.3^2 - 0.2^2$

$= 0.09 - 0.04 = 0.05$

45. (B) $(8.75 - 7.75)^2 = (1)^2 = 1$

46. (D) $\frac{515.86 \times 515.86 - 314.87 \times 314.87}{200.99}$

$= \frac{(515.86 + 314.87)(515.86 - 314.87)}{200.99}$

$= \frac{830.73 \times 200.99}{200.99} = 830.73$

47. (B) $\frac{.356 \times .356 - 2 \times .356 \times .106 + .106 \times .106}{.632 \times .632 + 2 \times .632 \times .368 + .368 \times .368}$

$= \frac{(.356 - .106)^2}{(.632 + .368)^2}$

$[(a - b)^2 = a^2 + b^2 - 2ab, (a + b)^2 = a^2 + b^2 + 2ab]$

$= \frac{(.250)^2}{(1.000)^2} \Rightarrow (.25)^2 = 0.0625$

48. (A) $1093 \times 1093 = (1000 + 90 + 3) \times (1000 + 90 + 3)$

$= 1000000 + 90000 + 3000 + 90000 + 8100 + 270 + 3000 + 270 + 9$

$= 1194649$

49. (C) $= \frac{(36.54)^2 - (3.46)^2}{x} = 40$

$= \frac{(36.54 + 3.46)(36.54 - 3.46)}{x} = 40$

$= \frac{40 \times 33.08}{x} = 40$

$= \frac{33.08}{x} = \frac{40}{40} = 1$

$x = 33.08$

50. (B) $? = \frac{2.3 \times 2.3 \times 2.3 - 1}{2.3 \times 2.3 + 2.3 + 1}$

$= \frac{(2.3)^3 - 1}{(2.3)^2 + 2.3 + 1^2}$

$= \frac{(2.3 - 1)[(2.3)^2 + 2.3 + 1^2]}{(2.3)^2 + 2.3 + 1^2}$

$[\because a^3 - b^3 = (a^2 + b^2 + ab)(a - b)]$

$= 2.3 - 1 \Rightarrow 1.3$

51. (D) $\frac{6.5 \times 4.7 + 6.5 \times 5.3}{1.3 \times 7.9 - 1.3 \times 6.9} = \frac{6.5\,(4.7 + 5.3)}{1.3\,(7.9 - 6.9)}$

$= \frac{5 \times 10}{1} \Rightarrow 50$

52. (C) $1.07 \times 65 + 1.07 \times 26 + 1.07 \times 9 = 1.07\,(65 + 26 + 9)$

$= 1.07 \times 100 \Rightarrow 107$

53. (A) $\frac{69842 \times 69842 - 30158 \times 30158}{69842 - 30158} = \frac{(69842)^2 - (30158)^2}{69842 - 30158}$

$= \frac{(69842 - 30158)(69842 + 30158)}{(69842 - 30158)}$

$[\because a^2 - b^2 = (a - b)(a + b)]$

$= (69842 + 30158) = 100000$

54. (C) $\frac{(0.06)^2 + (0.47)^2 + (0.079)^2}{(0.006)^2 + (0.047)^2 + (0.0079)^2}$

$= \frac{(0.06)^2 + (0.47)^2 + (0.079)^2}{\left(\frac{1}{10}\right)^2 \{(0.06)^2 + (0.47)^2 + (0.079)^2\}}$

$= \frac{1}{\left(\frac{1}{10}\right)^2} = (10)^2 \Rightarrow 100$

55. (D) $\sqrt{?} + 84 = \sqrt{625}$

$\sqrt{?} + 84 = 25$

$\sqrt{?} = 25 - 84$

$\sqrt{?} = -59$ (वर्ग करने पर)

$? = (-59)^2$

$= 3481$

56. (D)

	189
1	35721
1	1
28	257
8	224
36	×3321
	3321
	× × × ×

वर्गमूल = 189

2nd method

357 21

↓ ↓

18 1 or 9

⇓

18 × 19 = 342 < 357

अत: वर्गमूल = 189

57. (B) 60 84

↓ ↓

7 2 or 8

7 × 8 = 56 < 60

अत: वर्गमूल = 78

58. (C) 161 29

↓ ↓

12 3 or 7

12 × 13 = 156 < 161

अत: वर्गमूल = 127

59. (D) 2 10 25

↓ ↓ ↓

1 + 1 + 1 ⇒ 3

60. (A) 96 04

↓ ↓

1 + 1 ⇒ 2

61. (A) $\left(16-\frac{3}{8}\right)\left(16+\frac{3}{8}\right)$ [∵ (a − b) × (a + b) = a² − b²]

$\Rightarrow 16^2-\left(\frac{3}{8}\right)^2 \Rightarrow 256-\frac{9}{64}$

$\Rightarrow 255+1-\frac{9}{64}=255+\frac{55}{64}$

62. (C) $\left(22-\frac{3}{7}\right)^2+\left(22+\frac{3}{7}\right)^2$

[∵ (a + b)² + (a − b)² = 2 (a² + b²)]

$\Rightarrow 2\left[22^2+\left(\frac{3}{7}\right)^2\right]$

$\Rightarrow 2\left(484+\frac{9}{49}\right)=968+\frac{18}{49}=968\frac{18}{49}$

63. (B) 6.8 + 0.68 + 0.068 ⇒ 7.548

64. (C) = √(25 × 6) - √(9 × 6) - √(4 × 6)

= 5√6 - 3√6 - 2√6

? = 0

65. (A) √2 + √x = √3

√x = √3 - √2

Squaring both sides:

$x=(\sqrt{3})^2+(\sqrt{2})^2-2\times\sqrt{3}\times\sqrt{2}$

x = 3 + 2 - 2√6

x = 5 - 2√6

66. (C) $\sqrt{144}=12$

$\frac{\sqrt{.00000144}}{12}=\frac{.0012}{12}$

$\frac{.0012}{12}\times\frac{10000}{10000}$

$\frac{12}{12\times10000}=0.0001$

67. (D) $\sqrt{0.059049}=\sqrt{\frac{59049}{1000000}}=\frac{243}{1000}=0.243$

68. (D) $\sqrt{9}=3$

$\therefore \frac{\sqrt{27}}{\sqrt{9}}=\frac{\sqrt{9\times3}}{\sqrt{9}}$

$=\sqrt{\frac{9\times3}{9}}\Rightarrow\sqrt{3}$

69. (B) $\frac{\sqrt{0.0196}}{K}=0.2$

$\therefore K=\frac{\sqrt{0.0196}}{0.2}\Rightarrow\frac{0.14}{0.2}=0.7$

70. (A) $\sqrt{12.96}+\sqrt{0.1296}+\sqrt{0.001296}+\sqrt{0.00001296}$

= 3.6 + .36 + .036 + .0036 ⇒ 3.9996

71. (A) $\sqrt{a}-\frac{1}{\sqrt{a}}=\frac{\sqrt{a}\times\sqrt{a}-1}{\sqrt{a}}$

$=\frac{a-1}{\sqrt{a}}\Rightarrow\frac{5+2\sqrt{6}-1}{\sqrt{5+2\sqrt{6}}}$ $\{a^2+b^2+2ab=(a+b)^2\}$

$=\frac{4+2\sqrt{6}}{\sqrt{2+3+2\sqrt{2}\sqrt{3}}}\Rightarrow\frac{4+2\sqrt{6}}{\sqrt{2}+\sqrt{3}}$

$=\frac{2\sqrt{2}(\sqrt{2}+\sqrt{3})}{(\sqrt{2}+\sqrt{3})}\Rightarrow 2\sqrt{2}$

72. (D) $\sqrt{900}+\sqrt{0.09}+\sqrt{0.000009}$ = 30+0.300+0.003

= 30.303

73. (D) $\sqrt{\frac{1694}{?}}+14=25$

$\sqrt{\frac{1694}{?}}=25-14\Rightarrow 11$

$\frac{1694}{?}=121\Rightarrow\frac{1694}{121}=14$

74. (A) $\frac{\left(3\frac{1}{4}\right)^4-\left(4\frac{1}{3}\right)^4}{\left(3\frac{1}{4}\right)^2-\left(4\frac{1}{3}\right)^2}=\frac{\left\{\left(\frac{13}{4}\right)^2+\left(\frac{13}{3}\right)^2\right\}\left\{\left(\frac{13}{4}\right)^2-\left(\frac{13}{3}\right)^2\right\}}{\left\{\left(\frac{13}{4}\right)^2-\left(\frac{13}{3}\right)^2\right\}}$

$=\left(\frac{13}{4}\right)^2+\left(\frac{13}{3}\right)^2$

$=169\left\{\frac{1}{16}+\frac{1}{9}\right\}$

$=169\left\{\frac{9+16}{144}\right\}$

$=\frac{169\times 25}{144}$

वर्गमूल = $\sqrt{\frac{169\times 25}{144}}\Rightarrow\frac{13\times 5}{12}$

$=\frac{65}{12}\Rightarrow 5\frac{5}{12}$

75. (A) $\sqrt{4a^2+4ab+b^2}$

$\sqrt{(2a)^2+2\times 2a\times b+b^2}$

$\sqrt{(2a+b)^2}$

(2a + b)

76. (D) $\frac{7\sqrt{14}}{\sqrt{343}}=\frac{7\sqrt{7\times 2}}{\sqrt{7\times 7\times 7}}$

$=\frac{7\times\sqrt{7}\times\sqrt{2}}{7\sqrt{7}}\rightarrow\sqrt{2}$

77. (D) $\frac{3\sqrt{121}-\sqrt{361}}{\sqrt{529}+2\sqrt{36}}$

$=\frac{3\times\sqrt{11\times 11}-\sqrt{19\times 19}}{\sqrt{23\times 23}+2\sqrt{6\times 6}}$

$=\frac{3\times 11-19}{23+2\times 6}$

$=\frac{33-19}{23+12}$

$=\frac{14}{35}\Rightarrow\frac{2}{5}$

78. (B) $\sqrt{\frac{0.081\times 0.484}{0.0064\times 6.25}}=\sqrt{\frac{81\times 484}{64\times 625}}$

$=\frac{9\times 22}{8\times 25}\Rightarrow 0.99$

79. (B) $x^2-(78)^2=6460$

$x^2=6460+6084=12544$

$x=112$

80. (B) $x\times x=28.09$

$x^2=(5.3)^2$

$x=5.3$

81. (D) 2744 = 7 × 7 × 7 × 8

= 7 × 7 × 7 × 2 × 2 × 2

संख्या = 7 × 2 = 14

82. (A) $x^2=(75.15)^2-(60.12)^2$

$x^2=(75.15+60.12)(75.15-60.12)$

$x^2=135.27\times 15.03$

$x^2=45.09\times 45.09$

$x=45.09$

83. (C) $36^2=1296$

1300 - 1296 ⇒ 4

84. (C) $2904=11^2\times 2^3\times 3$

$=2\times 3=6$

85. (B) बाग में पंक्ति की संख्या = $\sqrt{7569}=87$

86. (C) (A) 41 = 52 + 42

(B) 13 = 22 + 32

(C) 23

(D) 37 = 62 + 12

अत: संख्या 23 दो वर्गों का योग नहीं है।

87. (D) $\sqrt{x}\times\frac{1}{3}=0.005$

$\sqrt{x}=0.015$

$x=0.000225$

88. (D) $=\frac{(\sqrt{2})^2}{(\sqrt{3})^2}\cdot\frac{(2+\sqrt{3})(2-\sqrt{3})}{(\sqrt{3}+1)(\sqrt{3}-1)}=\frac{2}{3}\left[\frac{2^2-(\sqrt{3})^2}{(\sqrt{3})^2-1^2}\right]$

$=\frac{2}{3}\left(\frac{4-3}{3-1}\right)=\frac{2}{3}\times\frac{1}{2}=\frac{1}{3}$

89. (A) $\sqrt{24\div 0.5+1}+\sqrt{18\div 0.6+6}$

$=\sqrt{24\times\frac{1}{0.5}+1}+\sqrt{18\times\frac{1}{0.6}+6}$

$=\sqrt{24\times\frac{10}{5}+1}+\sqrt{\frac{18\times 10}{6}+6}$

$=\sqrt{48+1}+\sqrt{30+6}$

$\sqrt{49}+\sqrt{36}=7+6=13$

90. (B) $(\sqrt{63}+\sqrt{252})\times(\sqrt{175}+\sqrt{28})$
$=(\sqrt{63}+\sqrt{4\times63})\times(\sqrt{25\times7}+\sqrt{4\times7})$
$=(\sqrt{7\times9}+\sqrt{4\times9\times7})\times(\sqrt{5\times5\times7}+\sqrt{2\times2\times7})$
$=(3\sqrt{7}+6\sqrt{7})\times(5\sqrt{7}+2\sqrt{7})$
$=9\sqrt{7}\times7\sqrt{7}=441$

91. (C) 243

92. (B) 625

93. (D) 101 × 101 × 101 = 1030301

94. (D) ∴ 1 सेमी = 10 मिली मी.

∴ 20^3 सेमी = 20^3 × 10

= 8000 × 10 = 80000 मिली मी.

95. (C) ⇒ $(-28)^3+(49)^3+(-21)^3$

⇒ -21952 + 117649 - 9261 = 86436

or

a = – 28

b = 49

c = –21

a + b + c = 0

So, $a^3+b^3+c^3=3abc$

3 × 49 × -28 × -21 = 86436

96. (A) ⇒ $(20)^3+(-14)^3+(-6)^3$

⇒ 8000 – 2744 – 216 = 5040

or

a = 20

b = –14

c = –6

a + b + c = 0

So, $a^3+b^3+c^3=3abc$

3 × –14 × –6 × 20 = 5040

97. (C) माना संख्या = x

$(153)^2 - x^3 = 1457$

$x^3 = (153)^2 - 1457$

$x^3 = 23409 - 1457$

$x^3 = 21952$

$\therefore x = \sqrt[3]{21952} = \sqrt[3]{28\times28\times28} = 28$

98. (C) माना संख्या = x

$(121)^2 - x^3 = 8809$

$x^3 = (121)^2 - 8809$

$x^3 = 14641 - 8809$

$x^3 = 5832$

$\therefore x = \sqrt[3]{5832} = \sqrt[3]{18\times18\times18} = 18$

99. (B) $9^2 = 81$

$9^3 = 729$

$11^2 = 121$

$11^3 = 1331$

वर्ग का अंतिम अंक = 1

अत: घन का अंतिम अंक 1 या 9 होगा।

100. (B) –1 तथा 1 ऐसे पूर्णांक हैं, जिनका घन स्वयं के बराबर होता है।

अत: अंतर = 1 – (–1) = 2

101. (B) माना कोई संख्या x है।

प्राप्त संख्या = $x-\frac{x^3}{x^2}$

$=\frac{x^3-x^3}{x^2}$

= 0

or

$4^2 = 16$

$4^3 = 64$

64/16 = 4

4 – 4 = 0

102. (D) $x + x^3 = 1740$

$x(1 + x^2) = 1740$

x = 12

12 × 145 = 1740

1740 = 1740

103. (A) $(45)^3 - (41)^3$

$= (45 - 41)\{(45)^2 - (45)(41) + (41)^2\}$

$= 86\{2025 - 1845 + 1681\}$

$= 86 \times 1861 = 1600046$

104. (D) $(5.5)^3 - (4.5)^3$

$= (5.5 - 4.5)\{(5.5)^2 + (5.5)(4.5) + (4.5)^2\}$

$= 1\{30.25 + 24.75 + 20.25\} = 75.25$

105. (B) $(2.5)^3 - (1.5)^3$

$= (2.5 - 1.5)\{(2.5)^2 + (2.5)(1.5) + (1.5)^2\}$

$= 1\{6.25 + 3.75 + 2.25\} = 12.25$

106. (B) $[(0.111)^3 + (0.222)^3 - (0.333)^3 + (0.333)^2 (0.222)]^2$

$= [(0.111)^3 + 8(0.111)^3 - 27(0.111)^3 + 9 \times 2(0.111)^2(0.111)]^2$

$= [-18(0.111)^3 + 18(0.111)^3] = 0$

107. (C) $1^3 + 2^3 + \cdots + 5^3 = 225$

$2^s + 4^3 + \cdots 10^3$

$= 2^8[1^3 + 2^3 + \cdots + 5^3]$

$= 8 \times 225 = 1800$

108. (D) $1^3 + 2^3 + \cdots + 10^3 = 3025$

$2^s + 4^3 + \cdots 20^3$

$= 2^8[1^3 + 2^3 + \cdots + 10^3]$

$= 8 \times 3025 = 24200$

109. (A) $99 \times 21 - \sqrt[3]{x} = 1968.$

$2079 - \sqrt[3]{x} = 1968$

$\sqrt[3]{x} = 2079 - 1968 = 111$

$x = (111)^3 = 1367631$

110. (B) $(.000729)^{\frac{1}{3}} = \left(\frac{729}{10^6}\right)^{\frac{1}{3}}$

$= \left(\frac{9\times9\times9}{10^2\times10^2\times10^2}\right)^{\frac{1}{3}} = \frac{9}{10^2} = \frac{9}{100} = .09$

111. (C) $\sqrt[3]{333 + \sqrt[3]{987 + \sqrt[3]{2197}}}$

$\sqrt[3]{333 + \sqrt[3]{987 + 13}}$

$\sqrt[3]{333 + \sqrt[3]{1000}} = \sqrt[3]{333 + 10} \Rightarrow \sqrt[3]{343} = 7$

112. (D) $\sqrt[3]{-2300} \times \sqrt[3]{5290} = \sqrt{-2300 \times 5290}$

$= \sqrt[3]{-23 \times 100 \times 529 \times 10}$

$\Rightarrow \sqrt[3]{-23 \times 23 \times 23 \times 1000} = -23 \times 10 \Rightarrow -230$

113. (B) $\frac{\sqrt[3]{8}}{\sqrt{16}} \div \sqrt{\frac{100}{49}} \times \sqrt[3]{125}$

$= \frac{2}{4} \div \frac{10}{7} \times 5 = \frac{2}{7} \times \frac{7}{10} \times 5 = \frac{7}{4} = 1\frac{3}{4}$

114. (B) $\sqrt[3]{4\frac{12}{125}} = \sqrt[3]{\frac{512}{125}} = \left(\frac{8\times8\times8}{5\times5\times5}\right)^{\frac{1}{3}} = \frac{8}{5} = 1\frac{3}{5}$

115. (B) $\sqrt{.000064} = \sqrt{\frac{64}{10^6}} = \frac{8}{10^3} = \frac{8}{1000} = .008$

$\sqrt[3]{\sqrt{.000064}} = \sqrt[3]{.008} = \sqrt[3]{\frac{8}{1000}} = \frac{2}{10} = 0.2$

116. (C) $2\sqrt[3]{32} - 3\sqrt[3]{4} + \sqrt[3]{500}$

$= 2 \times \sqrt[3]{2^3 \times 4} - 3\sqrt[3]{4} + \sqrt[3]{125 \times 4}$

$= 4\sqrt[3]{4} - 3\sqrt[3]{4} + 5\sqrt[3]{4}$

$= 6\sqrt[3]{4}$

117. (C) $\sqrt[3]{74.088} + \sqrt[3]{0.074088} + \sqrt[2]{0.001764}$

$4.2 + .42 + .042 \Rightarrow 5.04$

118. (C) $\frac{\sqrt[3]{-2744} \times \sqrt[3]{-216}}{\sqrt[3]{\frac{64}{729}}}$

$\Rightarrow \frac{(-14)\times(-6)}{\left(\frac{4}{9}\right)}$

$\Rightarrow \frac{(84\times9)}{4}$

$\Rightarrow \frac{756}{4} = 189$

119. (B) $a^3 + b^3 + c^3 = 3abc = 0$

When $(a + b + c) = 0$

Here, $a = 32$, $b = 79$, $c = -111$

$a + b + c = 32 + 79 - 111 = 0$

$\therefore (32)^3 + (79)^3 - (111)^3 + 3 \times 32 \times 79 \times 111 = 0$

120. (C) $4^3 = 64$

8^2 64

121. (C) $\sqrt[3]{p(p^2 + 3p + 3) + 1} = \sqrt{p^3 + 3p^2 + 3P + 1^3}$

$= \sqrt[3]{(P + 1)^3} = (P + 1) = 100 + 1 = 101$

122. (C) $54925 = 5 \times 5 \times 13 \times 13 \times 13$

Least no. = 5

123. (D) $491 + x = 8^3$

$x = 512 - 491 = 21$

124. (B) $864 = 3 \times 3 \times 3 \times 4 \times 4 \times 2.$

$n = 2$

125. (D) $343 = 7 \times 7 \times 7$ (पूर्ण घन पर पूर्ण वर्ग नहीं है।)

$125 = 5 \times 5 \times 5$ (पूर्ण घन पर पूर्ण वर्ग नहीं है।)

$81 = 3 \times 3 \times 3 \times 3$ (पूर्ण घन पर पूर्ण वर्ग नहीं है।)

$729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$ पूर्ण वर्ग एवं पूर्ण घन है।

126. (A) $\left(1 - \frac{1}{2}\right)\left(1 - \frac{1}{3}\right)\left(1 - \frac{1}{4}\right) \ldots\ldots \left(1 - \frac{1}{10}\right)$

$= \frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \ldots\ldots \frac{9}{10} = \frac{1}{10}$

127. (B) $\left(1-\frac{1}{4}\right)\times\left(1-\frac{2}{4}\right)\times\left(1-\frac{3}{4}\right)\times\left(1-\frac{4}{4}\right)\times\left(1-\frac{5}{4}\right)\times\left(1-\frac{6}{4}\right)$
$=\frac{3}{4}\times\frac{2}{4}\times\frac{1}{4}\times 0\times\frac{-1}{4}\times\frac{-2}{4} \Rightarrow = 0$

128. (C) $\left(2-\frac{1}{3}\right)\left(2-\frac{3}{5}\right)\left(2-\frac{5}{7}\right)\ldots.\left(2-\frac{997}{999}\right)$
$=\left(\frac{6-1}{3}\right)\left(\frac{10-3}{5}\right)\left(\frac{14-5}{7}\right)\ldots..\left(\frac{1998-997}{999}\right)$
$=\frac{5}{3}\times\frac{7}{5}\times\frac{9}{7}\times\ \ldots\ldots\frac{1001}{999}\Rightarrow\frac{1001}{3}$

129. (D) $555\frac{1}{7}+555\frac{2}{7}+555\frac{3}{7}+555\frac{4}{7}+555\frac{5}{7}+555\frac{6}{7}=?$
$=555\times 6+\left(\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\frac{4}{7}+\frac{5}{7}+\frac{6}{7}\right)$
$=3330+\left(\frac{21}{7}\right)\Rightarrow 3333$

130. (B) $=(625\times 5)+\left(\frac{2}{17}+\frac{3}{17}+\frac{5}{17}+\frac{8}{17}+\frac{16}{17}\right)$
$=3125+\frac{34}{17}=3125+2=3127$

131. (C) $\frac{1}{1\times2\times3}+\frac{1}{2\times3\times4}+\frac{1}{3\times4\times5}+\frac{1}{4\times5\times6}=?\times\frac{21}{5}\times\frac{11}{60}$
$\frac{1}{6}\left\{1+\frac{1}{4}+\frac{1}{10}+\frac{1}{20}\right\}=?\times\frac{21}{5}\times\frac{11}{60}$
$\frac{1}{6}\left\{\frac{20+5+2+1}{20}\right\}=?\times\frac{21}{5}\times\frac{11}{60}$
$\frac{1}{6}\left\{\frac{28}{20}\right\}=?\times\frac{21}{5}\times\frac{11}{60}$
$\frac{1}{6}\times\frac{28}{20}=?\times\frac{21}{5}\times\frac{11}{60}$
$\frac{7}{30}=?\times\times\frac{21}{5}\times\frac{11}{60}$
$?=\frac{10}{33}$

132. (A) $\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\left(1-\frac{1}{5}\right)\ldots\ldots\ldots\ldots\left(1-\frac{1}{25}\right)$
$=\frac{2}{3}\times\frac{3}{4}\times\frac{4}{5}\times\ldots\frac{24}{25}=\frac{2}{25}$

133. (C) $\left[\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\cdots\frac{1}{9\times10}\right]$
$=\left(1-\frac{1}{2}\right)+\left(\frac{1}{2}-\frac{1}{3}\right)+\left(\frac{1}{3}-\frac{1}{4}\right)+\left(\frac{1}{4}-\frac{1}{5}\right)+\cdots+\left(\frac{1}{9}-\frac{1}{10}\right)$
$=1-\frac{1}{10}=\frac{9}{10}=0.9$

134. (B) $\frac{3}{1^2.2^2}+\frac{5}{2^{2.}3^2}+\frac{7}{3^{2.}4^2}+\frac{9}{4^{2.}5^2}+\cdots+\frac{19}{9^2+10^2}$
$=\frac{3}{1\times4}+\frac{5}{4\times9}+\frac{7}{9\times16}+\frac{9}{16\times25}+\cdots+\frac{19}{81\times100}$
$=1-\frac{1}{4}+\frac{1}{4}\times\frac{1}{9}+\frac{1}{9}-\frac{1}{16}+\frac{1}{16}-\frac{1}{25}+\cdots+\frac{1}{81}-\frac{1}{100}$
$=1-\frac{1}{100}=\frac{99}{100}$

135. (B) $\left(1-\frac{1}{5}\right)\left(1-\frac{1}{6}\right)\left(1-\frac{1}{7}\right)\ldots\ldots\left(1-\frac{1}{80}\right)$
$=\frac{4}{5}\times\frac{5}{6}\times\frac{6}{7}\times\frac{7}{8}\times\ \ldots\ldots\frac{79}{80}=\frac{4}{80}=\frac{1}{20}$

136. (C) $\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\left(1-\frac{1}{4^2}\right)\ldots\left(1-\frac{1}{9^2}\right)\left(1-\frac{1}{10^2}\right)$
$=\left(\frac{4-1}{4}\right)\left(\frac{9-1}{9}\right)\left(\frac{16-1}{16}\right)\ldots\ldots\ldots.\left(\frac{81-1}{81}\right)\left(\frac{100-1}{100}\right)$
$=\frac{3}{4}\times\frac{8}{9}\times\frac{15}{16}\times\frac{24}{25}\times\frac{35}{36}\times\frac{48}{49}\times\frac{80}{81}\times\frac{63}{64}\times\frac{99}{100}$
$=\frac{176}{64\times5}=\frac{11}{20}$

137. (C) $\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\ldots\ldots\left(1+\frac{1}{100}\right)$
$=\frac{3}{2}\times\frac{4}{3}\times\frac{5}{4}\times\frac{6}{5}\times\ \ldots\ldots\frac{101}{100}=\frac{101}{2}=50.5$

138. (D) $\frac{1}{20}+\frac{1}{30}+\frac{1}{42}+\frac{1}{56}+\frac{1}{72}+\frac{1}{90}$
$=\frac{1}{4\times5}+\frac{1}{5\times6}+\frac{1}{6\times7}+\frac{1}{7\times8}+\frac{1}{8\times9}+\frac{1}{9\times10}$
$=\frac{1}{4}-\frac{1}{10}=\frac{5-2}{20}=\left(\frac{3}{20}\right)$

139. (C) $\frac{1}{3}\left(1-\frac{1}{4}\right)+\frac{1}{3}\left(\frac{1}{4}-\frac{1}{7}\right)+\frac{1}{3}\left(\frac{1}{7}-\frac{1}{10}\right)+\frac{1}{3}\left(\frac{1}{10}-\frac{1}{13}\right)+\frac{1}{3}\left(\frac{1}{13}-\frac{1}{16}\right)$
$=\frac{1}{3}\left[\left(1-\frac{1}{4}\right)+\left(\frac{1}{4}-\frac{1}{7}\right)+\left(\frac{1}{7}-\frac{1}{10}\right)+\left(\frac{1}{10}-\frac{1}{13}\right)+\left(\frac{1}{13}-\frac{1}{16}\right)\right]$
$=\frac{1}{3}\left(1-\frac{1}{16}\right)=\frac{1}{3}\times\frac{15}{16}=\frac{5}{16}$

140. (A) $=\frac{4\times3^3+3^2+3+1}{4\times3^3}=\frac{108+9+3+1}{108}=\frac{121}{108}$

141. (C) $=\frac{1}{(2-1)(2+1)}+\frac{1}{(4-1)(4+1)}+\frac{1}{(6-1)(6+1)}+\frac{1}{(20-1)(20+1)}$
$=\frac{1}{1\times3}+\frac{1}{3\times5}+\frac{1}{5\times7}+\cdots+\frac{1}{19\times21}$
$=\frac{1}{2}\left(1-\frac{1}{3}\right)+\frac{1}{2}\left(\frac{1}{3}-\frac{1}{5}\right)+\frac{1}{2}\left(\frac{1}{5}-\frac{1}{7}\right)+\cdots+\frac{1}{2}\left(\frac{1}{19}-\frac{1}{21}\right)$
$=\frac{1}{2}\left(1-\frac{1}{21}\right)=\frac{1}{2}\times\frac{20}{21}=\frac{10}{21}$

142. (B) $\left(1-\frac{1}{2}\right)+\left(\frac{1}{2}-\frac{1}{3}\right)+\left(\frac{1}{3}-\frac{1}{4}\right)+\left(\frac{1}{4}-\frac{1}{5}\right)+\ldots+\left(\frac{1}{11}-\frac{1}{12}\right)$
$=\left(1-\frac{1}{12}\right)=\frac{11}{12}$

143. (A) $\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)\ldots\ldots..\left(1+\frac{1}{n-1}\right)$
$=\frac{4}{3}\times\frac{5}{4}\times\frac{6}{5}\times\ldots\ldots\ldots.\frac{n}{n-1}=\frac{n}{3}$

144. (D) $\frac{1}{2\times4}+\frac{1}{4\times6}+\frac{1}{6\times8}+\cdots+\frac{1}{48\times50}$
$=\frac{1}{4}\left[\frac{1}{2}+\frac{1}{6}+\frac{1}{12}+\cdots+\frac{1}{24\times25}\right]$
$=\frac{1}{4}\left[\left(1-\frac{1}{2}\right)\left(\frac{1}{2}-\frac{1}{3}\right)+\left(\frac{1}{3}-\frac{1}{4}\right)+\cdots+\left(\frac{1}{24}-\frac{1}{25}\right)\right]$
$=\frac{1}{4}\left[1-\frac{1}{25}\right]=\frac{24}{100}=0.24$

145. (D) $\left(1+\frac{1}{x}\right)\left(1+\frac{1}{x+1}\right)\left(1+\frac{1}{x+2}\right)\left(1+\frac{1}{x+3}\right)$
$=\left(\frac{x+1}{x}\right)\left(\frac{x+2}{x+1}\right)\left(\frac{x+3}{x+2}\right)\left(\frac{x+4}{x+3}\right) \Rightarrow =\frac{x+4}{x}$

146. (C) $(25)^4\div(5)^5=\frac{(5^2)^4}{(5^5)}=\frac{5^{(2\times4)}}{5^5}=\frac{5^8}{5^5}=5^3=125$

147. (A) $\{(-2)^{(-2)}\}^{(-2)} \Rightarrow (-2)^4 \Rightarrow 16$

148. (D) $27^{1.5} \times 9^{1.25} \div 3^5 = 3^n$

$3^{4.5} \times 3^{2.5} \div 3^5 = 3^n$

$3^7 \div 3^5 = 3^n$

$3^2 = 3^n \quad \Rightarrow n = 2$

149. (C) $\left(\frac{2}{3}\right)^{x+1} = \left(\frac{3}{2}\right)^{x-1}$

$\left(\frac{2}{3}\right)^{x+1} = \left(\frac{2}{3}\right)^{-(x-1)}$

$x + 1 = -x + 1$

$2x = 0 \quad \Rightarrow x = 0$

150. (C) $\frac{9^m \times 3^5 \times 27^3}{3 \times 81^4} = 3^9$

$\frac{3^{2m} \times 3^5 \times 3^9}{3 \times 3^{16}} = 3^9$

$\frac{3^{14+2m}}{3^{17}} = 3^9$

$3^{14+2m} = 3^{26}$

$14 + 2m = 26$

$2m = 12 \quad \Rightarrow \quad m = 6$

151. (B) $6^{1.2} \times 36^{?} \times 30^{2.4} \times 25^{1.3} = 30^5$

$36^{?} = \frac{30^5}{6^{1.2} \times 30^{2.4} \times 25^{1.3}} = \frac{30^{2.6}}{6^{1.2} \times 5^{2.6}}$

$\frac{5^{2.6} \times 6^{2.6}}{6^{1.2} \times 5^{2.6}} = 6^{1.4}$

$6^{2x} = 6^{1.4}$

$2x = 1.4 \quad \Rightarrow x = 0.7$

152. (C) $\sqrt{5^n} = 5$

$5^n = 5^2$

$n = 2$

153. (A) $2^x = 4^{y+1} \Rightarrow x = 2y + 2$

$3^y = 3^{x-9} \Rightarrow y = x - 9$

$x = 16, y = 7$

154. (C) $\sqrt{3^n} = \sqrt{6561}$

$3^n = 6561$

$3^n = 3^8$

$n = 8$

155. (D) $a^{2x} = b,\ b^{2y} = c,\ c^{2z} = a$

$a = b = c$

$a^{2x} = b = a$

$2x = 1$

$x = \frac{1}{2}, y = \frac{1}{2}, z = \frac{1}{2}$

$xyz = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$

156. (C) $\Rightarrow \left(\frac{3}{5}\right)^{2x-1} \times \left(\frac{3}{5}\right)^4 = \left(\frac{3}{5}\right)^{15}$

$\Rightarrow \left(\frac{3}{5}\right)^{2x-1+4} = \left(\frac{3}{5}\right)^{15}$

$\Rightarrow 2x + 3 = 15$

$\Rightarrow 2x = 12$

$\Rightarrow x = 6$

157. (C) $3^{2x+1} - 3^x = 3^{x+3} - 3^2 \quad \ldots(i)$

विकल्प C;

(2, −1) x के मान को समीकरण (i) में रखने पर,

$3^{2\times2+1} - 3^2 = 3^{2+3} - 3^2$

$3^5 - 3^2 = 3^5 - 3^2$

$3^3 = 3^3$ (Satisfy)

158. (B) $\left(\frac{2}{7}\right)^{-3} \times \left(\frac{2}{7}\right)^{-5} = \left(\frac{2}{7}\right)^{-3m+1}$

$\left(\frac{2}{7}\right)^{-8} = \left(\frac{2}{7}\right)^{-3m+1}$

$-3m + 1 = -8$

$-3m = -9 \quad \Rightarrow m = 3$

159. (D) $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}} = 7^{\frac{1}{5}-\frac{1}{3}} = 7^{-\frac{2}{15}}$

160. (C) $\left(\frac{2020}{2000}\right)^{-2008} \times \left(\frac{2020}{2000}\right)^{2008} \times 2020$

$\left(\frac{2000}{2020}\right)^{2008} \times \left(\frac{2020}{2000}\right)^{2008} \times 2020$

$= 1 \times 2020 = 2020$

161. (B) $(3^x)(3^y) = 9$ and $(25^x)(5^y) = 625$

$(3)^{x+y} = 9$

x = 2 और y = 0

162. (C) $47^{7.5} \div 47^{3/2} \times 47^{-3} = \left(\sqrt{47}\right)^{?}$

$47^{(7.5-1.5)} \times 47^{-3} = \left(\sqrt{47}\right)^{?}$

$47^6 \times 47^{-3} = \left(\sqrt{47}\right)^{?}$

$47^3 = \left(\sqrt{47}\right)^{?}$

? = 6

163. (A) $25^{3.8} \times 5^{4.2} \div 5^{6.4} = 25^x$

$5^{2\times\frac{38}{10}} \times 5^{\frac{42}{10}} \div 5^{\frac{64}{10}} = 25^x$

$5^{\frac{76}{10}} \times 5^{\frac{42}{10}} \div 5^{\frac{64}{10}} = 25^x$

$5^{\frac{54}{10}} = 5^{2x}$

x = 2.7

164. (D) $2^x = 4^{y+1}$ and $3^y = 3^{x-9}$

$2^x = 2^{2y+2}$

x = 2y + 2 ...(1)

x − 9 = y

x = y + 9 ....(2)

(1) और (2) से

2y + 2 = y + 9

y = 7, x = 16

165. (C) $3^{2\times5} = 3^{10}$

166. (B) 3 × 3 × 2

5 = 5^{18}

167. (C) $3^{2^5} = 3^{32}$

168. (C) $(6)^{\sqrt[4]{x}} + (8)^{\sqrt[4]{x}} = (10)^{\sqrt[4]{x}}$ ... (i)

$\because 6^2 + 8^2 = 10^2$ ... (ii)

समी (i) एवं समी (ii) की तुलना करने पर,

$\sqrt[4]{x} = 2$

x = 2^4 = 16

169. (A) $\frac{1}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{1}{(32)^{-\frac{1}{5}}}$

$= \frac{1}{(6^3)^{-\frac{2}{3}}} + \frac{1}{(4^4)^{\left(-\frac{3}{4}\right)}} + \frac{1}{(2^5)^{-\frac{1}{5}}}$

$= \frac{1}{6^{3\times\left(\frac{-2}{3}\right)}} + \frac{1}{4^{4\times\left(\frac{-3}{4}\right)}} + \frac{1}{2^{5\times\left(\frac{-1}{5}\right)}} = \frac{1}{6^{-2}} + \frac{1}{4^{-3}} + \frac{1}{2^{-1}}$

= ($6^2 + 4^3 + 2^1$) = (36 + 64 + 2) = 102

170. (A) −0.2

$(-0.2)^2 = 0.04$

$(-0.2)^3 = -0.008$

$(-0.2)^4 = 0.0016$

अत: सबसे छोटा मान है

=(−0.2)

171. (D) $\sqrt{1350} = \sqrt{5\times5\times3\times3\times6}$

$= 3\times5\sqrt{6} = 15\sqrt{6}$

172. (C) $\frac{1}{\sqrt{3}}\times\frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3} \Rightarrow \frac{1.732}{3} = 0.577$

173. (A) $\frac{7}{3+\sqrt{2}} = \frac{7(3-\sqrt{2})}{3^2-(\sqrt{2})^2} \Rightarrow \frac{7(3-\sqrt{2})}{7}$

= 3 - 1.4142 ⇒ 1.5858

174. (D) $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$

$\frac{(5+2\sqrt{3})\times(7-4\sqrt{3})}{(7+4\sqrt{3})\times(7-4\sqrt{3})} = a + b\sqrt{3}$

$\frac{35+14\sqrt{3}-20\sqrt{3}-24}{49-48} = a + b\sqrt{3}$

$11 - 6\sqrt{3} = a + b\sqrt{3}$

a = 11, b = - 6

175. (A) दिया है- $2\sqrt{11}, 4\sqrt{3}, 3\sqrt{5}, 5\sqrt{2}$

$2\times11^{\frac{1}{2}}, 4\times3^{\frac{1}{2}}, 3\times5^{\frac{1}{2}}, 5\times2^{\frac{1}{2}}$

घात को 2 से गुणा करने पर

$2\times11^{\frac{1}{2}\times2}, 4\times3^{\frac{1}{2}\times2}, 3\times5^{\frac{1}{2}\times2}, 5\times2^{\frac{1}{2}\times2}$

2 × 11, 4 × 3, 3 × 5, 5 × 2

22, 12, 15, 10

अवरोही क्रम में ⇒ 10, 12, 15, 22

$\Rightarrow 5\sqrt{2}, 4\sqrt{3}, 3\sqrt{5}, 2\sqrt{11}$

176. (B) $\frac{\sqrt{32}-\sqrt{18}}{\sqrt{50}+\sqrt{8}} = \frac{\sqrt{2\times2\times2\times2\times2}-\sqrt{3\times3\times2}}{\sqrt{5\times5\times2}+\sqrt{2\times2\times2}}$

$= \frac{4\sqrt{2}-3\sqrt{2}}{5\sqrt{2}+2\sqrt{2}}$

$= \frac{\sqrt{2}(4-3)}{\sqrt{2}(5+2)}$

$= \frac{1}{7}$

177. (A) $\frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}} = \frac{(\sqrt{7}+\sqrt{5})(\sqrt{7}+\sqrt{5})}{(\sqrt{7}-\sqrt{5})(\sqrt{7}+\sqrt{5})}$

$= \frac{(\sqrt{7}+\sqrt{5})^2}{7-5} \Rightarrow \frac{7+5+2\sqrt{35}}{2}$

$= \frac{12+2\sqrt{35}}{2} \Rightarrow 6 + \sqrt{35}$

178. (C) $\therefore \sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}\ .....} = 2^{\left(\frac{2^5-1}{2^5}\right)}$

$= 2^{\frac{32-1}{32}} = 2^{\left(\frac{31}{32}\right)}$

179. (B) $\therefore \sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}\ .....} = 2^{\left(\frac{2^4-1}{2^4}\right)}$

$= 2^{\frac{16-1}{16}} = 2^{\left(\frac{15}{16}\right)}$

180. (C) $\frac{\sqrt{2}}{3\sqrt{3}} = \frac{\sqrt{2}\times\sqrt{3}}{3\sqrt{3}\times\sqrt{3}}$

$= \frac{\sqrt{6}}{3\times3} \Rightarrow \frac{2.45}{9} \Rightarrow 0.27\overline{2}$

181. (D) $\frac{\sqrt{5}}{(3-\sqrt{2})}\times\frac{3+\sqrt{2}}{(3+\sqrt{2})} \Rightarrow \frac{3\sqrt{5}+\sqrt{10}}{3^2-(\sqrt{2})^2}$

$= \frac{3\sqrt{5}+\sqrt{10}}{9-2} \Rightarrow \frac{3\sqrt{5}+\sqrt{10}}{7}$

182. (B) $\frac{4+\sqrt{2}}{\sqrt{2}+1} = \frac{(4+\sqrt{2})(\sqrt{2}-1)}{2-1}$

$= \frac{4\sqrt{2}-4+2-\sqrt{2}}{1} = 3\sqrt{2} - 2$

183. (D) $\frac{\sqrt{5}+1}{\sqrt{5}-1}=\frac{(\sqrt{5}+1)^2}{(\sqrt{5}-1)(\sqrt{5}+1)}=\frac{5+1+2\sqrt{5}}{5-1}$
$=\frac{6+2\sqrt{5}}{4}=\frac{3+\sqrt{5}}{2}$

184. (D) $12 = 3 \times 4$

Sign is +, so

$\sqrt{12+\sqrt{12+\sqrt{12+\cdots}}}=4$

185. (C) $6 = 2 \times 3$

Sign is +, so

$\sqrt{6+\sqrt{6+\sqrt{6+\cdots}}}=3$

186. (A) $\frac{1+\sqrt{3}}{1-\sqrt{3}}+\frac{1-\sqrt{3}}{1+\sqrt{3}}$
$=\frac{(1+\sqrt{3})^2+(1-\sqrt{3})^2}{1-3}$
$=\frac{1+3+2\sqrt{3}+1+3-2\sqrt{3}}{-2}$
$=\frac{8}{-2}=-4$

187. (A) $\frac{3+\sqrt{5}}{3-\sqrt{5}}+\frac{3-\sqrt{5}}{3+\sqrt{5}}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=\frac{(3+\sqrt{5})(3+\sqrt{5})+(3-\sqrt{5})(3-\sqrt{5})}{(3-\sqrt{5})(3+\sqrt{5})}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=7+\frac{(6-2\sqrt{5})}{4}$
$=\frac{17-\sqrt{5}}{2}$

188. (B) $\frac{2+\sqrt{5}}{2-\sqrt{5}}+\frac{2-\sqrt{5}}{2+\sqrt{5}}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=\frac{(2+\sqrt{5})(2+\sqrt{5})(2-\sqrt{5})(2-\sqrt{5})}{(2+\sqrt{5})(2-\sqrt{5})}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=\frac{4+5+4+5}{4-5}+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=-18+\frac{\sqrt{5}-1}{\sqrt{5}+1}$
$=-18+\frac{\sqrt{5}-1}{\sqrt{5}+1}\times\frac{\sqrt{5}-1}{\sqrt{5}-1}$
$=-18+\frac{3-\sqrt{5}}{2}$
$=\frac{-33-\sqrt{5}}{2}$

189. (C) $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}}-\frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}-\frac{6}{\sqrt{8}-\sqrt{12}}$
$=\frac{\sqrt{6}}{\sqrt{2}-1}-\frac{2\sqrt{6}}{\sqrt{3}-1}-\frac{3}{\sqrt{2}-\sqrt{3}}$
$=\frac{\sqrt{6}(\sqrt{2}+1)}{1}-\frac{2\sqrt{6}(\sqrt{3}+1)}{2}-\frac{3(\sqrt{2}+\sqrt{3})}{-1}$
$=2\sqrt{3}+\sqrt{6}-3\sqrt{2}-\sqrt{6}+3\sqrt{2}+3\sqrt{3}$
$=5\sqrt{3}$

190. (D) $\frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48+\sqrt{18}}}=a+b\sqrt{6}$
$\Rightarrow\frac{4\sqrt{3}+5\sqrt{2}}{4\sqrt{3}+3\sqrt{2}}\times\frac{4\sqrt{3}-3\sqrt{2}}{4\sqrt{3}-3\sqrt{2}}$
$\Rightarrow\frac{16\times3-12\sqrt{6}+20\sqrt{6}-15\times2}{16\times3-12\sqrt{6}+12\sqrt{6}-18}$
$\Rightarrow\frac{48-30+8\sqrt{6}}{48-18}\Rightarrow\frac{18+8\sqrt{6}}{30}$
$\Rightarrow\frac{18}{30}+\frac{8\sqrt{6}}{30}\Rightarrow\frac{3}{5}+\frac{4\sqrt{6}}{15}$
$\Rightarrow a+b\sqrt{6}=\frac{3}{5}+\frac{4\sqrt{6}}{15}$
$\therefore a=\frac{3}{5}$ व $b=\frac{4}{15}$ होगा।

191. (B) $56 = 7 \times 8$

Sign is +, so

$x = 8$

192. (B) $\sqrt{8-2\sqrt{15}}=\sqrt{5+3-2\times\sqrt{5}\times\sqrt{3}}$
$=\sqrt{(\sqrt{5})^2+(\sqrt{3})^2-2\times\sqrt{5}\times\sqrt{3}}$
$=\sqrt{(\sqrt{5}-\sqrt{3})^2}=(\sqrt{5}-\sqrt{3})$

193. (C) $\sqrt{5\sqrt{5\sqrt{5\sqrt{5}\ldots\ldots}}}$

माना $\sqrt{5\sqrt{5\sqrt{5\sqrt{5}\ldots\ldots}}}=x$

$5\sqrt{5\sqrt{5\sqrt{5}\ldots\ldots}}=x^2\Rightarrow5(x)=x^2$
$x^2=5x\Rightarrow x=5$

194. (B) $\sqrt{4\sqrt{4\sqrt{4\sqrt{4}\ldots\ldots}}}$

माना $\sqrt{4\sqrt{4\sqrt{4\sqrt{4}\ldots\ldots}}}=x$

$4\sqrt{4\sqrt{4\sqrt{4}\ldots\ldots}}=x^2\Rightarrow4(x)=x^2$
$x^2=4x\Rightarrow x=4$

195. (D) $\sqrt{x+4\sqrt{x+4\sqrt{x+4\sqrt{x+4}}}\ldots}$

दोनों तरफ वर्ग करने पर–

$x^2=x+4\sqrt{x+4\sqrt{x+4\sqrt{x+4}}\ldots}$
$\therefore x^2=x+4x$
$x^2=5x\Rightarrow x=5$

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