



- If $x^{150} = \frac{6-\sqrt{21}}{6+\sqrt{21}}$, then $x^{150} + \frac{1}{x^{150}} = ?$
यदि $x^{150} = \frac{6-\sqrt{21}}{6+\sqrt{21}}$ **हो तो**, $x^{150} + \frac{1}{x^{150}} = ?$
 a) 8.7 b) 8.6 c) 6.7 d) 7.6
- If $x = 23+3\sqrt{5}$, then $\sqrt{2x} + \frac{1}{\sqrt{2x}} = ?$
 a) $\frac{138\sqrt{5}+43}{44}$ b) $\frac{90\sqrt{5}+43}{22}$ c) $\frac{135\sqrt{5}+43}{44}$ d) $\frac{135\sqrt{5}+46}{22}$
- If $x=8+2\sqrt{15}$, then $\sqrt{x}-\frac{1}{\sqrt{x}} = ?$
 a) $2\sqrt{5}$ b) $2\sqrt{3}$ c) $\frac{(3\sqrt{5}+\sqrt{3})}{2}$ d) $\frac{(3\sqrt{3}+\sqrt{5})}{2}$
- If $x=9-4\sqrt{5}$, then $\sqrt{x}-\frac{1}{\sqrt{x}} = ?$
यदि $x = 9 - 4\sqrt{5}$ **हो तो**, $\sqrt{x}-\frac{1}{\sqrt{x}} = ?$
 a)-4 b)4 c) $-2\sqrt{5}$ d) $2\sqrt{5}$
- If $x - 10=2\sqrt{30}$, then $\sqrt{x+1} + \frac{1}{\sqrt{x+1}} = ?$
यदि $x - 10=2\sqrt{30}$ **हो तो**, $\sqrt{x+1} + \frac{1}{\sqrt{x+1}} = ?$
 a)- $2\sqrt{6}$ b)- $2\sqrt{5}$ c) $2\sqrt{6}$ d) $2\sqrt{5}$
- If $x=6+2\sqrt{6}$, then $\sqrt{x-1} + \frac{1}{\sqrt{x-1}} = ?$
यदि $x=6+2\sqrt{6}$ **हो तो**, $\sqrt{x-1} + \frac{1}{\sqrt{x-1}} = ?$
 a) $2\sqrt{3}$ b) $3\sqrt{2}$ c) $2\sqrt{2}$ d) $3\sqrt{3}$
- If $x + \frac{1}{x} = c + \frac{1}{c}$ then the value of x?
 a)c, 1/c b)c, c^2 c)c, 2c d)0,1
- If $(x + \frac{1}{x}) : (x - \frac{1}{x}) = 41 : 40$, the value of x is/are
 a) ± 11 c) ± 7 c) ± 8 d) ± 9
- If $3x + \frac{1}{5x} = 7$, then $\frac{5x}{(15x^2+15x+1)} = ?$
 a) $\frac{1}{5}$ b) $\frac{1}{10}$ c) $\frac{2}{5}$ d)10
- If $c + \frac{1}{c} = 3$, then $(c - 3)^7 + \frac{1}{c^7} = ?$
 a)2 b)0 c)3 d)1
- If $x + \frac{2\sqrt{3}}{x} = 1$, then $\frac{x^2+5x+2\sqrt{3}}{x^2(1-x)} = ?$
 a) $\sqrt{3}$ b) $2\sqrt{3}$ c) $3\sqrt{3}$ d)3
- If $x + \frac{a}{x} = b$, then $\frac{x^2+bx+a}{bx^2-x^3} = ?$
यदि $x + \frac{a}{x} = b$ **हो तो** $\frac{x^2+bx+a}{bx^2-x^3} = ?$
 (a) $\frac{b}{2a}$ (b) $\frac{4}{2b}$ (c) $\frac{2a}{b}$ (d) $\frac{2b}{a}$
- If $\frac{3x}{3x^2+4x+1} = \frac{1}{4}$, then $x + \frac{1}{3x} = ?$
 a) $\frac{1}{8}$ b) $\frac{8}{3}$ c) $\frac{4}{3}$ d) $\frac{3}{8}$
- If $x^{12.5} + \frac{1}{x^{12.5}} = 16$, then $x^{25} + \frac{1}{x^{25}} = ?$
यदि $x^{12.5} + \frac{1}{x^{12.5}} = 16$ **हो तो**, $x^{25} + \frac{1}{x^{25}} = ?$
 a)254 b)258 c)260 d)256
- If $\frac{x^{42}+1}{x^{21}} = 7$, then $\frac{x^{84}+1}{x^{42}} = ?$
यदि $\frac{x^{42}+1}{x^{21}} = 7$ **हो तो**, $\frac{x^{84}+1}{x^{42}} = ?$
 a)51 b)49 c)53 d)47
- If $x^{\frac{1}{2}} + \frac{1}{x^{\frac{1}{2}}} = 6$, then $x^2 + \frac{1}{x^2} = ?$
यदि $x^{\frac{1}{2}} + \frac{1}{x^{\frac{1}{2}}} = 6$ **हो तो**, $x^2 + \frac{1}{x^2} = ?$
 (a)1154 (b) 1160 (c) 1164 (d) 1158
- If $x\sqrt{x} + \frac{1}{x\sqrt{x}} = 7$, then $x^6 + \frac{1}{x^6} = ?$



- यदि $x\sqrt{x} + \frac{1}{x\sqrt{x}} = 7$ हो तो, $x^6 + \frac{1}{x^6} = ?$
 a)2401 b)2207 c)2399 d)2211
18. If $x + (1/x) = (\sqrt{3} + 1)/2$, then what is the value of $x^4 + (1/x^4)$?
 यदि $x + (1/x) = (\sqrt{3} + 1)/2$ है, तो $x^4 + (1/x^4)$ का मान क्या है?
 (a) $(4\sqrt{3} - 1)/4$ (b) $(4\sqrt{3} + 1)/2$
 (c) $(-4\sqrt{3} - 1)/4$ (d) $(-4\sqrt{3} - 1)/2$
19. If $x^{\frac{1}{4}} + \frac{1}{x^{\frac{1}{4}}} = 1$, then $x^{1024} + \frac{1}{x^{1024}} = ?$
 यदि $x^{\frac{1}{4}} + \frac{1}{x^{\frac{1}{4}}} = 1$ हो तो $x^{1024} + \frac{1}{x^{1024}} = ?$
 (a) 0 (b) -1 (c) 1 (d) 2
20. If $x^{2019} = 11 - 2\sqrt{30}$, then $x^{4038} + \frac{1}{x^{4038}} = ?$
 यदि $x^{2019} = 11 - 2\sqrt{30}$ हो तो, $x^{4038} + \frac{1}{x^{4038}} = ?$
 a)443 b)439 c)486 d)482
21. If $x + \frac{1}{x} = 17$, what is the value of $\frac{x^4 + \frac{1}{x^4}}{x^2 - 3x + 1}$?
 a) $\frac{2431}{7}$ b) $\frac{3375}{7}$ c) $\frac{3375}{14}$ d) $\frac{3985}{9}$
22. $a = \frac{2 + \sqrt{3}}{2 - \sqrt{3}}$ and $b = \frac{2 - \sqrt{3}}{2 + \sqrt{3}}$ value of $a^2 + b^2 + ab$?
 यदि $a = \frac{2 + \sqrt{3}}{2 - \sqrt{3}}$ and $b = \frac{2 - \sqrt{3}}{2 + \sqrt{3}}$ है, तो $a^2 + b^2 + ab$ का मान क्या है?
 (a) 185 (b) 195
 (c) 200 (d) 175
23. $a = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ and $b = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ value of $a^2 + b^2 - ab$?
 यदि $a = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ और $b = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ है, तो $a^2 + b^2 - ab$ का मान क्या है?
 (a) 97 (b) $(2\sqrt{3}) + 2$
 (c) $(4\sqrt{6}) + 1$ (d) 98
24. $a = \frac{3 + \sqrt{7}}{3 - \sqrt{7}}$ and $b = \frac{3 - \sqrt{7}}{3 + \sqrt{7}}$ value of $(a - b)^2 + ab$?
 यदि $a = \frac{3 + \sqrt{7}}{3 - \sqrt{7}}$ और $b = \frac{3 - \sqrt{7}}{3 + \sqrt{7}}$ है, तो $(a - b)^2 + ab$ का मान क्या है?
 (a) 257 (b) 255 (c) 253 (d) 259
25. If $P = 7 + 4\sqrt{3}$ and $PQ = 1$, then what is the value of $\left(\frac{1}{P^2}\right) + \left(\frac{1}{Q^2}\right)$?
 यदि $P = 7 + 4\sqrt{3}$ तथा $PQ = 1$ है तो $\left(\frac{1}{P^2}\right) + \left(\frac{1}{Q^2}\right)$ का मान क्या है?
 (a) 148 (b) 189 (c) 194 (d) 204
26. If $x\left(2 - \frac{6}{5x}\right) = \frac{2}{x}$, then $x^2 + \frac{1}{x^2} = ?$
 यदि $x\left(2 - \frac{6}{5x}\right) = \frac{2}{x}$ हो तो, $x^2 + \frac{1}{x^2} = ?$
 a) $\frac{41}{25}$ b) $\frac{59}{25}$ c) $\frac{24}{25}$ d) $-\frac{24}{25}$
27. If $2x - \frac{1}{2x} = 6$, then $x^2 + \frac{1}{16x^2} = ?$
 यदि $2x - \frac{1}{2x} = 6$ हो तो, $x^2 + \frac{1}{16x^2} = ?$
 a) $\frac{19}{2}$ b) $\frac{17}{2}$ c) $\frac{21}{2}$ d) $\frac{15}{2}$
28. If $x = (\sqrt{5}) + 1$ and $y = (\sqrt{5}) - 1$, then what is the value of $\left(\frac{x^2}{y^2}\right) + \left(\frac{y^2}{x^2}\right) + 4\left(\frac{x}{y}\right) + 4\left(\frac{y}{x}\right) + 6$?
 यदि $x = (\sqrt{5}) + 1$ तथा $y = (\sqrt{5}) - 1$ है, तो $\left(\frac{x^2}{y^2}\right) + \left(\frac{y^2}{x^2}\right) + 4\left(\frac{x}{y}\right) + 4\left(\frac{y}{x}\right) + 6$ का मान क्या है?
 (a) 31 (b) $23\sqrt{5}$ (c) $27\sqrt{5}$ (d) 25
29. If $x = \sqrt{\frac{3+2\sqrt{2}}{3-2\sqrt{2}}}$, then $x^8 + \frac{1}{x^8} = ?$
 a)1156 b)1154 c)1152 d)1158
30. If $x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ and $y = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ then $\frac{x^2+xy+y^2}{x^2-xy+y^2} = ?$



- a) $\frac{63}{61}$ b) $\frac{67}{65}$ c) $\frac{65}{63}$ d) $\frac{69}{67}$
31. If $x = \frac{\sqrt{13} + \sqrt{11}}{\sqrt{13} - \sqrt{11}}$ and $y = \frac{1}{x}$ then $3x^2 - 5xy + 3y^2 = ?$
 a) 1717 b) 1177 c) 1771 d) 1171
32. If $x^{\frac{5}{6}} + \frac{1}{x^{\frac{5}{6}+4}} = 0$, then $(x^{\frac{5}{6}} + 4)^2 + \frac{1}{(x^{\frac{5}{6}+4})^2} = ?$
 यदि $x^{\frac{5}{6}} + \frac{1}{x^{\frac{5}{6}+4}} = 0$ हो तो, $(x^{\frac{5}{6}} + 4)^2 + \frac{1}{(x^{\frac{5}{6}+4})^2} = ?$
 (a) 10 (b) 14 (c) 13 (d) 12
33. If $7 \cdot x^{\frac{7}{4}} - 8 \cdot x^{\frac{7}{8}} + 7 = 0$, then $x^{\frac{7}{4}} + x^{-\frac{7}{4}} = ?$
 यदि $7 \cdot x^{\frac{7}{4}} - 8 \cdot x^{\frac{7}{8}} + 7 = 0$, हो तो, $x^{\frac{7}{4}} + x^{-\frac{7}{4}} = ?$
 a) $-\frac{33}{49}$ b) $-\frac{34}{49}$ c) $\frac{162}{49}$ d) $-\frac{105}{49}$
34. If $\frac{2x}{5x^2-7x+5} = \frac{1}{3}$, then $x^2 + \frac{1}{x^2} = ?$
 a) $\frac{219}{25}$ b) $\frac{119}{25}$ c) $\frac{69}{25}$ d) $\frac{138}{25}$
35. If $\frac{4P}{P^2-4P+4} = \frac{1}{4}$ ($P \neq 0$), then $P^2 + \frac{16}{P^2} = ?$
 यदि $\frac{4P}{P^2-4P+4} = \frac{1}{4}$ ($P \neq 0$) हो तो $P^2 + \frac{16}{P^2} = ?$
 (a) 390 (b) 392 (c) 394 (d) 400
36. If $\frac{12x^2-27x+28}{4x^2-9x+9} = 3.2$ then $\sqrt{x^2 + \frac{1}{x^2}} = ?$
 यदि $\frac{12x^2-27x+28}{4x^2-9x+9} = 3.2$ हो तो, $\sqrt{x^2 + \frac{1}{x^2}} = ?$
 a) $\frac{7}{4}$ b) $\frac{9}{4}$ c) $\frac{5}{4}$ d) $\frac{3}{2}$
37. $5a + \frac{1}{3a} = 5$, then $9a^2 + \frac{1}{25a^2} = ?$
 यदि $5a + \frac{1}{3a} = 5$ हो तो $9a^2 + \frac{1}{25a^2} = ?$
 (a) $\frac{51}{5}$ (b) $\frac{29}{5}$ (c) $\frac{52}{5}$ (d) $\frac{39}{5}$
38. $8x - \frac{1}{2x} = 6$, then $16x^2 + \frac{1}{16x^2} = ?$
 यदि $8x - \frac{1}{2x} = 6$ हो तो $16x^2 + \frac{1}{16x^2} = ?$
 (a) $\sqrt{7}$ (b) $\sqrt{11}$ (c) 7 (d) 11
39. If $m^2 - 23m + 43 = 0$, then $(m - 2) + \frac{1}{(m-2)} = ?$
 यदि $m^2 - 23m + 43 = 0$, हो तो $(m - 2) + \frac{1}{(m-2)} = ?$
 a) 21 b) 19 c) 42 d) 0
40. If $x^2 + 2x = 34$, then $(x + 7)^2 + \frac{1}{(x+7)^2} = ?$
 यदि $x^2 + 2x = 34$ हो तो $(x + 7)^2 + \frac{1}{(x+7)^2} = ?$
 (a) 288 (b) 167 (c) 142 (d) 224
41. If $x^2 - 3x = 89$, then $(x + 8)^2 + \frac{1}{(x+8)^2} = ?$
 यदि $x^2 - 3x = 89$, हो तो $(x + 8)^2 + \frac{1}{(x+8)^2} = ?$
 (a) 326 (b) 363 (c) 291 (d) 227
42. If $x^2 - 12x + 33 = 0$, then what is the value of $(x - 4)^4 + [1/(x - 4)^4]$?
 यदि $x^2 - 12x + 33 = 0$ है, तो $(x - 4)^4 + [1/(x - 4)^4]$ का मान क्या है?
 (a) 227 (b) 326
 (c) 167 (d) 194
43. If $x^2 - 16x + 59 = 0$, then what is the value of $(x - 6)^2 - [1/(x-6)^2]$?
 यदि $x^2 - 16x + 59 = 0$ है, तो $(x - 6)^2 - [1/(x-6)^2]$ मान क्या है?
 (a) $9\sqrt{7}$ (b) $8\sqrt{5}$
 (c) $8\sqrt{3}$ (d) 18
44. If $a^2 - 4a - 1 = 0$, then $a^2 + \frac{1}{a^2} + 3a - \frac{3}{a} = ?$



- यदि $a^2 - 4a - 1 = 0$, हो तो, $a^2 + \frac{1}{a^2} + 3a - \frac{3}{a} = ?$
- (a) 26 (b) 30 (c) 35 (d) 40
45. If $x + \frac{1}{x+7} = 0$, then $x - \frac{1}{x+7} = ?$
- यदि $x + \frac{1}{x+7} = 0$, हो तो, $x - \frac{1}{x+7} = ?$
- (a) $3\sqrt{5} - 5$ (b) $3\sqrt{5} - 7$ (c) $3\sqrt{7} - 5$ (d) $3\sqrt{7} - 7$
46. If $x - \frac{1}{x+11} = 0$, then $x + \frac{1}{x+11} = ?$
- यदि $x - \frac{1}{x+11} = 0$, हो तो, $x + \frac{1}{x+11} = ?$
- (a) $5\sqrt{5} - 11$ (b) $2\sqrt{13} - 11$ (c) $3\sqrt{5} - 11$ (d) $3\sqrt{13} + 11$
47. If $a = \frac{1}{a-5}$ ($a > 0$) then the value of $a + \frac{1}{a}$ is
- a) $\sqrt{29}$ b) $2\sqrt{29}$ c) $-\sqrt{29}$ d) $\sqrt{21}$
48. If $x^{1019} - \frac{1}{x^{1019}} = 10$, then $x^{1019} + \frac{1}{x^{1019}} = ?$
- यदि $x^{1019} - \frac{1}{x^{1019}} = 10$, हो तो, $x^{1019} + \frac{1}{x^{1019}} = ?$
- (a) $10\sqrt{104}$ (b) $\sqrt{104}$ (c) $4\sqrt{6}$ (d) $3\sqrt{104}$
49. If $x^{85} + \frac{1}{x^{85}} = 20$, then $\frac{x^{170}-1}{x^{85}} = ?$
- (a) $\sqrt{392}$ (b) $6\sqrt{11}$ (c) $2\sqrt{101}$ (d) 19
50. If $\frac{A+B}{\sqrt{AB}} = 2\sqrt{10}$, then $\frac{A-B}{\sqrt{AB}} = ?$
- (a) 14 (b) 12 (c) 6 (d) 8
51. If $3x - \frac{1}{4x} = 6$, then $4x + \frac{1}{3x} = ?$
- यदि $3x - \frac{1}{4x} = 6$, हो तो, $4x + \frac{1}{3x} = ?$
- (a) $2\sqrt{17}$ (b) $\frac{4\sqrt{13}}{\sqrt{3}}$ (c) $2\sqrt{15}$ (d) $\frac{4\sqrt{17}}{\sqrt{3}}$
52. If $2x^2 - 4\sqrt{10}x + 7 = 0$, then $\frac{2}{7}x - \frac{1}{x} = ?$
- (a) $\frac{\sqrt{96}}{7}$ (b) $\frac{\sqrt{128}}{7}$ (c) $\frac{\sqrt{104}}{7}$ (d) $\frac{\sqrt{111}}{7}$
53. If $3x + \frac{2}{x} = 7$, then $9x^2 - \frac{4}{x^2} = ?$
- यदि $3x + \frac{2}{x} = 7$, हो तो, $9x^2 - \frac{4}{x^2} = ?$
- (a) 25 (b) 35 (c) 49 (d) 30
54. If $6a - \frac{1}{10a} = 12$, then $100a^2 - \frac{1}{36a^2} = ?$
- यदि $6a - \frac{1}{10a} = 12$, हो तो, $100a^2 - \frac{1}{36a^2} = ?$
- (a) $40\sqrt{101\frac{2}{3}}$ (b) $40\sqrt{98\frac{1}{3}}$ (c) $40\sqrt{98\frac{2}{3}}$ (d) $40\sqrt{100\frac{2}{3}}$
55. If $x^{\frac{3}{4}} + \frac{1}{x^{\frac{3}{4}+9}} = 0$, then $(x^{\frac{3}{4}} + 9)^2 - \frac{1}{(x^{\frac{3}{4}+9})^2} = ?$
- यदि $x^{\frac{3}{4}} + \frac{1}{x^{\frac{3}{4}+9}} = 0$ हो तो, $(x^{\frac{3}{4}} + 9)^2 - \frac{1}{(x^{\frac{3}{4}+9})^2} = ?$
- (a) $9\sqrt{77}$ (b) $11\sqrt{5}$ (c) $6\sqrt{77}$ (d) $9\sqrt{5}$
56. If $x + \frac{1}{x-11} = 0$, then $x^3 + \frac{1}{x^3} = ?$
- यदि $x + \frac{1}{x-11} = 0$ हो तो, $x^3 + \frac{1}{x^3} = ?$
- (a) 967 (b) 1333 (c) 1298 (d) -1364
57. If the average of two numbers x and $\frac{1}{x}$ is A, here ($x \neq 0$) then the average of x^3 and $\frac{1}{x^3}$ is:
- (a) $4A^3 - 2A$ (b) $4A^3 - 3A$ (c) $4A^3 - 4A$ (d) $4A^3 - A$
58. If $P + \frac{1}{P+3} = 1$, then $(P+3)^3 + \frac{1}{(P+3)^3} - 4 = ?$
- (a) 52 (b) 48 (c) 54 (d) 56
59. If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{19}$, then $x\sqrt{x} + \frac{1}{x\sqrt{x}} = ?$
- यदि $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{19}$ हो तो $x\sqrt{x} + \frac{1}{x\sqrt{x}} = ?$
- (a) $16\sqrt{19}$ (b) $22\sqrt{19}$ (c) $19\sqrt{19}$ (d) $15\sqrt{19}$



60. If $x^{15} + \frac{1}{x^{15}} = 9$, then $x^{45} + \frac{1}{x^{45}} = ?$
 a)729 b)756 c)702 d)774
61. If $x + \frac{1}{16x} = 1$, then $64x^3 + \frac{1}{64x^3} = ?$
यदि $x + \frac{1}{16x} = 1$ हो तो $64x^3 + \frac{1}{64x^3} = ?$
 (a) 4 (b) 52 (c) 64 (d) 76
62. If $a + \frac{1}{25a} = 1$, then $125a^3 + 125\frac{1}{125a^3} = ?$
 a)232 b)235 c)236 d)238
63. If $x + \frac{1}{4x} = \frac{5}{2}$, then what is the value of $\frac{64x^6+1}{8x^3} = ?$
 a)110 b)115 c)140 d)125
64. If $3x + \frac{1}{2x} = 5$, then $8x^3 + \frac{1}{27x^3} = ?$
यदि $3x + \frac{1}{2x} = 5$ हो तो $8x^3 + \frac{1}{27x^3} = ?$
 a) $\frac{946}{27}$ b) $\frac{820}{27}$ c) $\frac{730}{27}$ d) $\frac{973}{27}$
65. If $4x - \frac{1}{5x} = 6$, then $1000x^3 - \frac{1}{8x^3} = ?$
 a)3400 b)3375 c)3600 d)3575
66. If $6x - \frac{4}{9x} = 1$, then $729x^3 - \frac{8}{27x^3} = ?$
यदि $6x - \frac{4}{9x} = 1$ हो तो $729x^3 - \frac{8}{27x^3} = ?$
 (a) $\frac{41}{4}$ (b) $\frac{99}{8}$ (c) $\frac{243}{8}$ (d) $\frac{195}{8}$
67. If $x^{12} + \frac{1}{x^{12}} = 10\sqrt{2}$, then $x^{36} - \frac{1}{x^{36}} = ?$
 a)2786 b)2702 c)2744 d)2828
68. If $2x + \frac{1}{3x} = 2$, then $27x^3 - \frac{1}{8x^3} = ?$
यदि $2x + \frac{1}{3x} = 2$ हो तो $27x^3 - \frac{1}{8x^3} = ?$
 a) $\frac{15\sqrt{3}}{2}$ b) $\frac{11\sqrt{3}}{2}$ c) $\frac{13\sqrt{3}}{2}$ d) $\frac{17\sqrt{3}}{2}$
69. If $\frac{a+b}{\sqrt{ab}} = 4$, then $\left(\frac{a}{b}\right)^{\frac{3}{2}} + \left(\frac{b}{a}\right)^{\frac{3}{2}} = ?$
 a)52 b)60 c)48 d)68
70. If $2x - \frac{5}{9x} = 3$, then $36x^2 - \frac{25}{9x^2} = ?$
यदि $2x - \frac{5}{9x} = 3$ हो तो $36x^2 - \frac{25}{9x^2} = ?$
 a)99 b)119 c)123 d)101
71. If $\frac{x^{20}+1}{x^{10}} = 6$, then $\frac{x^{60}+1}{x^{30}} = ?$
यदि $\frac{x^{20}+1}{x^{10}} = 6$, हो तो, $\frac{x^{60}+1}{x^{30}} = ?$
 a)214 b)216 c)198 d)196
72. If $x(x-3\sqrt{3})=1$, then $x^3(x^3-90\sqrt{3}) = ?$
 a)1 b)0 c) $\sqrt{3}$ d) $-3\sqrt{3}$
73. If $x^4 - \frac{1}{x^4} = 12$, then $x^{12} - \frac{1}{x^{12}} = ?$
यदि $x^4 - \frac{1}{x^4} = 12$ हो, तो $x^{12} - \frac{1}{x^{12}} = ?$
 (a)1692 (b)1764 (c) 1728 (d)1800
74. If $4b^2 + \frac{1}{b^2} = 2$, then $8b^3 + \frac{1}{b^3} = ?$
 (a) 0 (b) 1 (c) 2 (d) 4
75. If $x^3 - \frac{1}{x^3} = 140$, then $x + \frac{1}{x} = ?$
 (a) 2 (b) 3 (c) 4 (d) 5
76. If $3a - \left(\frac{3}{a}\right) - 3 = 0$, then what is the value of $a^3 - \frac{1}{a^3} + 2 = ?$
 a)0 b)2 c)4 d)6
77. If $3p \cdot (2p-1) + 2 = 0$ then $9p^3 + \frac{1}{3p^3} = ?$
 a) $-\frac{27}{8}$ b) $-\frac{243}{8}$ c) $\frac{27}{8}$ d) $\frac{243}{8}$



78. If $x + \frac{1}{x} = 5$, then the value of $\frac{x^4+3x^3+5x^2+3x+1}{x^4+1}$ is
 a) $\frac{43}{23}$ b) $\frac{47}{21}$ c) $\frac{41}{23}$ d) $\frac{45}{21}$
79. If $x = 3+2\sqrt{2}$, then the value of $\frac{x^6+x^5+x^4+x^3+x^2+x+1}{x^3}$ is
 a) 238 b) 239 c) 256 d) 362
80. If $x - \frac{1}{x} = 3$, then $\frac{x^6 - \frac{1}{x^4}}{4x^2 + 6x - 4} = ?$
 a) $21\frac{5}{6}$ b) $14\frac{5}{6}$
 c) $13\frac{1}{6}$ d) $15\frac{1}{6}$
81. If $x(x-12)+1=0$, then $x^3 + x^2 + x + \frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^3} = ?$
 a) 1844 b) 1841 c) 1835 d) 1847
82. If $x - \frac{1}{x} = 3$, then what is the value of $\frac{(2x^4+3x^3+13x^2-3x+2)}{(3x^4+3)}$?
 a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{4}{3}$ d) $\frac{5}{3}$
83. If $x = 2 + \sqrt{3}$, $y = 2 - \sqrt{3}$, $z = 1$, then what is the value of $\left(\frac{x}{yz}\right) + \left(\frac{y}{xz}\right) + \left(\frac{z}{xy}\right) + 2\left[\left(\frac{1}{x}\right) + \left(\frac{1}{y}\right) + \left(\frac{1}{z}\right)\right]$?
 (a) 25 (b) 22 (c) 17 (d) 43
84. If $x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ find the value of $\frac{x^6+4x^5+2x^3+4x+1}{4x^5+5x^3+4x} = ?$
 (a) 562/192 (b) 627/124
 (c) 738/253 (d) 485/67
85. If $(x-a)(x-b)=1$ and $a-b+5=0$ then, $(x-a)^3 - \frac{1}{(x-a)^3} = ?$
 यदि $(x-a)(x-b)=1$ तथा $a-b+5=0$ है, तो $(x-a)^3 - \frac{1}{(x-a)^3}$ का मान क्या है?
 a) 110 b) 1
 c) 125 d) 140
86. If $x^2 + x = 5$, then $(x+3)^3 + \frac{1}{(x+3)^3} = ?$
 a) 110 b) 125
 c) 140 d) 0
87. If $x^2 - 28x + 131 = 0$, then $(x-22)^3 + \frac{1}{(x-22)^3} = ?$
 a) $259\sqrt{260}$ b) $255\sqrt{260}$
 c) $257\sqrt{260}$ d) $251\sqrt{260}$
88. If $4x^2 - 18x - 35 = 0$, then $(2x+3)^3 - \frac{1}{(2x+3)^3} = ?$
 a) $224\sqrt{221}$ b) $224\sqrt{229}$
 c) $226\sqrt{227}$ d) $225\sqrt{226}$
89. If $a^2 + \sqrt{3}a - 5 = 0$, then $(a - \sqrt{3})^3 + \frac{1}{(a-\sqrt{3})^3} = ?$
 a) $72\sqrt{3}$ b) $36\sqrt{3}$
 c) $-36\sqrt{3}$ d) $-72\sqrt{3}$

ANSWER KEY: -

1.d	2.c	3.d	4.a	5.c	6.a	7.a	8.d	9.b	10.b
11.a	12.d	13.b	14.a	15.d	16.a	17.b	18.c	19.b	20.b
21.a	22.b	23.a	24.c	25.c	26.b	27.a	28.d	29.b	30.a
31.a	32.b	33.b	34.b	35.b	36.a	37.d	38.d	39.b	40.c
41.b	42.d	43.b	44.b	45.b	46.a	47.a	48.b	49.b	50.c
51.b	52.c	53.b	54.a	55.a	56.c	57.b	58.b	59.a	60.c
61.b	62.b	63.a	64.b	65.c	66.c	67.a	68.a	69.a	70.a
71.c	72.a	73.b	74.a	75.d	76.d	77.a	78.a	79.b	80.b
81.d	82.c	83.a	84.c	85.d	86.a	87.c	88.a	89.d	



- If $(x + \frac{1}{x} + 1)(x + \frac{1}{x} - 1) = 2$, then
 - $x^{38} + \frac{1}{x^{38}} = ?$
 - $x^{45} + \frac{1}{x^{69}} = ?$
 - $x^{53} + \frac{1}{x^{53}} = ?$
 - $x^{75} + \frac{1}{x^{75}} = ?$
 - $x^{84} + x^{66} + x^{30} + x^{18} + x^{12} + 3 = ?$
 - $x^{320} + x^{314} + x^{250} + x^{244} + x^{94} + x^{88} + x^{45} + x^{39} + x^6 + 5 = ?$
 - $x^{79} + x^{55} + x^{41} + x^{25} + x^{19} + x^{12} + x^5 + 2 = ?$
- If $x^2 + \frac{1}{x^2} = 1$, then $x^5 + \frac{1}{x^5} = ?$
 - $-\sqrt{3}$
 - $\sqrt{3}$
 - 0
 - 1
- If $(x + \frac{1}{x})^2 = 3$, then $x^{37} + \frac{1}{x^{41}} = ?$
 - 0
 - $\sqrt{3}$
 - $-\sqrt{3}$
 - 1
- If $x^2 + \frac{1}{x^2} = 1$, then $x^{42} + x^{36} + x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1 = ?$
 - 9
 - 0
 - 1
 - 9
- If $x + \frac{1}{x} \neq 0$ and $x^3 + \frac{1}{x^3} = 0$ then the value of $(x + \frac{1}{x})^4$ is
 - 9
 - 15
 - 16
 - 16
- If $x^2 + \frac{1}{x^2} = 1$, then $x^{92} + x^{100} = ?$
 - 1
 - 1
 - 0
 - 2
- If $\frac{x^3+1}{x^2-1} = x + \sqrt{\frac{4}{x}}$, then $x^2 + \frac{1}{x^2} = ?$
 - $\frac{113}{16}$
 - $\frac{49}{16}$
 - $\frac{81}{16}$
 - $\frac{134}{16}$
- If $x + \frac{25}{x} = 10$, then $x^2 + \frac{25}{x^2} = ?$
 - 25
 - 26
 - 27
 - 28
- If $\frac{x^{34}+1}{x^{17}} = 5$, then $\frac{x^{136}+1}{x^{68}} = ?$
 - 531
 - 523
 - 528
 - 527
- If, $x^4 + \frac{1}{256x^4} = \frac{3}{8}$, then $(2x)^{16} + \frac{1}{(2x)^{16}} = ?$
 - 1154
 - 1158
 - 1156
 - 1152
- If $\frac{2x}{3} - \frac{3}{2x} = 5$, then $\frac{16x^4}{81} - \frac{81}{16x^4} = ?$
 - $154\sqrt{29}$
 - $162\sqrt{29}$
 - $135\sqrt{29}$
 - $108\sqrt{29}$
- If $x^{18} + \frac{1}{x^{18}} = 3$, then $x^{72} - \frac{1}{x^{72}} = ?$
 - $21\sqrt{5}$
 - $5\sqrt{21}$
 - $\sqrt{21}$
 - $\sqrt{5}$
- If $\frac{x}{x^2-9x+1} + \frac{1}{3} = 0$, then, $x^4 + \frac{1}{x^4} = ?$
 - 1154
 - 1156
 - 1188
 - 1152
- If $x - \frac{1}{x} = 7$, then, $x^4 + \frac{1}{x^4} = ?$
 - 2403
 - 2525
 - 2401
 - 2599
- If $x = 2\sqrt{6} + 5$, then, $x^4 - \frac{1}{x^4} = ?$
 - $3820\sqrt{6}$
 - $4020\sqrt{6}$
 - $3920\sqrt{6}$
 - $3720\sqrt{6}$
- If $x^6 + \frac{1}{x^6} = 5$, then $x^{30} + \frac{1}{x^{30}} = ?$
 - 2025
 - 2255
 - 2525
 - 2552
- If $x^{1000} + \frac{1}{x^{1000}} = 5$, then $x^{5000} - \frac{1}{x^{5000}} = ?$
 - $551\sqrt{21}$
 - $398\sqrt{21}$
 - $536\sqrt{21}$
 - $400\sqrt{21}$
- If $x + \frac{1}{x} = \sqrt{13}$, then $x^5 - \frac{1}{x^5} = ?$



- (a) 169 (b) $169\sqrt{3}$ (c) 393 (d) 507
19. If $x^2 + 13x + 39 = 0$, then $(x + 8)^5 - \frac{1}{(x+8)^5} = ?$
 a) 393 b) 396 c) 392 d) 394
20. If $x + \frac{1}{x} = 4$, then what is the value of, $x^6 + \frac{1}{x^6} = ?$
 a) 52 b) 256 c) 1026 d) 2702
21. If $x - \frac{1}{x} = 2$, then, $x^6 - \frac{1}{x^6} = ?$
 a) $114\sqrt{3} + 1$ b) $134\sqrt{2}$ c) $142\sqrt{2} + 3$ d) $140\sqrt{2}$
22. If $(x - \frac{1}{x})^2 = 3$, then the value of $x^6 + \frac{1}{x^6}$ equals
 a) 90 b) 110 c) 100 d) 120
23. If $x + \frac{1}{x} = 3$, then, $x^7 + \frac{1}{x^7} = ?$
 a) 843 b) 882 c) 807 d) 852
24. If $x + \frac{1}{x} = 4$, then, $x^7 - \frac{1}{x^7} = ?$
 a) $5844\sqrt{3}$ b) $5842\sqrt{3}$ c) $5824\sqrt{3}$ d) $5822\sqrt{3}$
25. If $x + \frac{1}{x} = 3$, then, $x^8 + \frac{1}{x^8} = ?$
 a) 2425 b) 2207 c) 2329 d) 3234
26. If $x - \frac{1}{x} = \sqrt{6}$, then, $x^8 - \frac{1}{x^8} = ?$
 a) $996\sqrt{15}$ b) $1008\sqrt{15}$ c) $992\sqrt{15}$ d) $1000\sqrt{15}$
27. If $x^2 - 4x + 1 = 0$, then what is the value of $x^9 + x^7 - 194x^5 - 194x^3$?
 (a) 4 (b) -4 (c) 1 (d) -1
28. If $x^2 - 3x + 1 = 0$, then what is the value of $x^{12} + x^8 - 123x^7 - 123x^3$?
 (a) 7 (b) -3 (c) -7 (d) 3
29. If $x = \frac{5+\sqrt{21}}{2}$, then $x^{11} + x^7 - 2525x^6 - 527x^3 = ?$
 (a) 4 (b) -4 (c) 5 (d) -5
30. If $x = 3 + 2\sqrt{2}$, then $x^9 + x^7 - 198x^6 - 24\sqrt{2}x^5 = ?$
 a) 0 b) $-198\sqrt{2}$
 c) $150\sqrt{2}$ d) $144\sqrt{2}$
31. If $x + \frac{1}{x} = 3$, then $x^8 + x^7 - 18x^4 - 123x^3 + x^2 + x = ?$
 (a) $3\sqrt{5}$ (b) -4 (c) $3\sqrt{5}$ (d) 4
32. If $x^2 + \frac{1}{x^2} = 98$, then $x^3 + \frac{1}{x^3} = ?$
 (a) 1030 (b) 1000 (c) 970 (d) 997
33. If $(x^2 + \frac{1}{x^2}) = \frac{7}{4}$, for $x > 0$, then $x^3 + \frac{1}{x^3} = ?$
 a) $\frac{(3\sqrt{3})}{5}$ b) $\frac{(3\sqrt{15})}{5}$ c) $\frac{(3\sqrt{15})}{8}$ d) $\frac{(3\sqrt{5})}{8}$
34. If $(x^2 + \frac{1}{x^2}) = \frac{31}{9}$, for $x > 0$, then $x^3 + \frac{1}{x^3} = ?$
 a) $\frac{70}{9}$ b) $\frac{154}{27}$ c) $\frac{349}{27}$ d) $\frac{349}{7}$
35. If $x(3 - \frac{15}{4x}) = \frac{3}{x}$, then $x^3 - \frac{1}{x^3} = ?$
 a) $5\frac{45}{64}$ b) $4\frac{44}{64}$ c) $5\frac{35}{64}$ d) $4\frac{54}{64}$
36. If $x^2 + \frac{1}{x^2} = p$, then $x^3 - \frac{1}{x^3} = ?$
 (a) $\sqrt{p+2}(p+1)$ (b) $\sqrt{p+2}(p-1)$ (c) $\sqrt{p-2}(p-1)$ (d) $\sqrt{p-2}(p+1)$
37. If $x^4 + \frac{1}{x^4} = 194$, then $x^3 + \frac{1}{x^3} = ?$
 (a) 52 (b) 51 (c) 54 (d) 56
38. If $x^4 + \frac{1}{x^4} = 727$, then $x^3 - \frac{1}{x^3} = ?$
 (a) 125 (b) 140 (c) 155 (d) 170
39. If $x^4 + \frac{1}{x^4} = 527$, then $x^4 - \frac{1}{x^4} = ?$
 a) $115\sqrt{21}$ b) $125\sqrt{21}$ c) $185\sqrt{21}$ d) $105\sqrt{21}$



40. If $x^4 + \frac{1}{x^4} = 47$, then $x^5 - \frac{1}{x^5} = ?$
 a) $53\sqrt{5}$ b) $57\sqrt{5}$ c) $59\sqrt{5}$ d) $55\sqrt{5}$
41. If $x^4 + \frac{1}{x^4} = 62$, then $x^6 + \frac{1}{x^6} = ?$
 a) 144 b) 288 c) 396 d) 488
42. If $x^5 + \frac{1}{x^5} = 724$, then $x + \frac{1}{x} = ?$
 (a) 4 (b) 6 (c) 8 (d) 7
43. If $\tan^5\theta + \cot^5\theta = 2525$, then $\tan^2\theta + \cot^2\theta = ?$
 a) 23 b) 38 c) 14 d) 50
44. If $x^6 + \frac{1}{x^6} = 198$, then $x^4 + \frac{1}{x^4} = ?$
 (a) 52 (b) 34 (c) 36 (d) 18
45. If $x^5 - \frac{1}{x^5} = 86$, then $x^3 - \frac{1}{x^3} = ?$
 (a) 14 (b) 12 (c) 24 (d) 76
46. If $x^4 + \frac{1}{x^4} = 167$, then $x^3 + \frac{1}{x^3} = ?$
 (a) $15\sqrt{14}$ (b) $12\sqrt{15}$ (c) $15\sqrt{15}$ (d) $16\sqrt{15}$
47. If $x^3 - \frac{1}{x^3} = \sqrt{k^2 - 4}(k^2 - 1)$, then $x^2 - \frac{1}{x^2} = ?$
 (a) $k\sqrt{k^2 - 4}$ (b) $k\sqrt{k^2 + 4}$ (c) $k(k^2 - 4)$ (d) $k(k^2 + 4)$
48. If $x^2 - \frac{1}{x^2} = k\sqrt{k^2 - 4}$, then $x^2 + \frac{1}{x^2} = ?$
 (a) $k^2 + 2$ (b) $k^2 - 2$ (c) $k^2 - 3$ (d) $\sqrt{k^2 - 2}$
49. If $x^4 - \frac{1}{x^4} = 115\sqrt{21}$, then $\frac{1+x+x^2+x^8+x^9+x^{10}}{x^5} = ?$
 a) 3162 b) 3057 c) 3678 d) 2635
50. If $x + \frac{1}{x} = 8$, $x^2 + \frac{1}{x^3} = 66$, then $x^3 + \frac{1}{x^2} = ?$
 a) 368 b) 484 c) 520 d) 198
51. If $x - \frac{1}{x} = 1$, then $\left\{ \frac{1}{x-1} - \frac{1}{x+1} + \frac{1}{x^2+1} - \frac{1}{x^2-1} \right\} = ?$
 (a) $\pm\sqrt{5}$ (b) $\frac{2}{5}$ (c) $\pm\frac{2}{\sqrt{5}}$ (d) $\pm\frac{\sqrt{5}}{2}$
52. If $(x+5)(x+6) + \frac{9}{x(x-1)} = 0$, then $2x^2 + 10x + 7 = ?$
 (a) 10 (b) 11 (c) 13 (d) 17
53. If $x^3 - 4x^2 + 19 = 6(x-1)$ then what is the value of $[x^2 + (1/x-4)]$?
 (a) 3 (b) 5
 (c) 6 (d) 8
54. $x^2 - 3x + 1 = 0$, then find the value of $x^9 + x^7 + x^{-9} + x^{-7}$?
 a) 6621 b) 4414
 c) 9208 d) 6069
55. $x^3 + 4x - 8 = 0$, then $x^7 + 64x^2 = ?$
 a) 96 b) 128
 c) 216 d) 108
56. If $(x^3 + \frac{1}{x^3}) : (x^2 - \frac{1}{x^2}) = 6 : \sqrt{5}$, then $x^2 + \frac{1}{x^2} = ?$
 a) 7 b) $\sqrt{13}$
 c) 11 d) $\sqrt{15}$

ANSWER KEY: -

1.	2.a	3.a	4.b	5.a	6.b	7.b	8.b	9.d	10.a
11.c	12.a	13.a	14.d	15.c	16.c	17.a	18.c	19.a	20.d
21.d	22.b	23.a	24.d	25.b	26.c	27.b	28.c	29.b	30.a
31.c	32.c	33.c	34.b	35.a	36.d	37.a	38.b	39.a	40.d



41.d	42.a	43.a	44.b	45.a	46.b	47.a	48.b	49.a	50.b
51.c	52.c	53.c	54.a	55.b	56.a				

CGL Aptitude Pathshala



- If $x^2 + \frac{1}{x^2} = 1$, then $x^{83} + x^{77} + x^{56} + x^{50} + x^{47} + x^{41} + 1 = ?$
(a) 0 (b) 2 (c) 3 (d) 1
- If $x - \frac{1}{x} = \sqrt{-3}$, then $x^{112} - x^{106} + x^{93} + x^{79} - x^{87} - x^{73} + x^{56} + x^{-32} + x^{37} + x^{-13} = ?$
a)0 b)2
c)3 d)1
- If $x + \frac{1}{x} = 2$, then $x^{64} + x^{121} = ?$
(a) 0 (b) 2 (c) 1 (d) -2
- If $x + \frac{1}{x} = 2$, then $(x^2 + \frac{1}{x^2})(x^3 + \frac{1}{x^3}) = ?$
(a) 6 (b)4 (c)8 (d)2
- If $m + \frac{1}{m-3} = 5$, then $(m-3)^2 + \frac{1}{(m-3)^2} = ?$
(a) 2 (b) 0 (c) -2 (d) 15
- If $x + \frac{1}{x+1} = 1$, then $(x+1)^2 + \frac{1}{(x+1)^5} = ?$
(a) 2 (b) 4 (c) 8 (d) 1
- If $a + \frac{1}{a+2} = 0$, then $(a+2)^3 + \frac{1}{(a+2)^3} = ?$
(a) 6 (b) 4 (c) 3 (d) 2
- If $a + \frac{1}{a-4} = 6$, then $(a-3)^7 + \frac{1}{(a-7)^3} = ?$
(a) $63\frac{7}{8}$ (b) $255\frac{1}{8}$ (c) $127\frac{7}{8}$ (d)216
- If $x^{\frac{1}{4}} + x^{-\frac{1}{4}} = 2$, then what is the value of $x^{81} + \frac{1}{x^{81}} = ?$
a)-2 b)0 c)1 d)2
- If $x^{2019} + \frac{1}{x^{2019}} = 2$, then $x^{4038} - \frac{1}{x^{4037}} = ?$
a)-2 b)0 c)1 d)2
- If $x^{43} + \frac{1}{x^{91}} = 2$, then $x^{91} - \frac{1}{x^{43}} = ?$
a)2 b)1 c)0 d)-2
- If $(4x-7)(9-4x)=1$, then $(15-7x)^5 + \frac{1}{3x^3} = ?$
a)0 b)2 c) $\frac{25}{24}$ d) $\frac{49}{24}$
- If $\frac{16}{7}x + \frac{7}{4x} = 4$, then $\sqrt{\frac{72}{7}x^2 + \frac{7}{3}x + \frac{73}{12}} = ?$
(a) 2 (b) 4 (c) 8 (d) 1
- If $x + \frac{1}{x} = -2$, then $x^{2n+1} + \frac{1}{x^{2n+4}} = ?$
(a) 2 (b) 4 (c) -2 (d) 0
- If $3x + \frac{1}{3x} + 2 = 0$, then $243x^7 + \frac{1}{81x^2} = ?$
(a) 2 (b) 4 (c) 0 (d) 1
- If $\frac{x}{5} + \frac{5}{x} = -2$, then what is the value of x^3 ?
a)-125 b)-25
c) $\frac{1}{125}$ d)625
- If $x + \frac{1}{x-7} = 5$, then $(x-7)^{77} + \frac{1}{(x-7)^{77}} = ?$
(a) 2 (b) 4 (c) -2 (d) 0
- If $x + \frac{1}{x+\frac{3}{4}} = -\frac{11}{4}$, then $(x + \frac{3}{4})^4 + \frac{1}{(a+\frac{3}{4})^3} = ?$
(a) 2 (b) 4 (c) -2 (d) 0



19. If $x+y+\frac{1}{x}+\frac{1}{y}=0$ and $(x+\frac{1}{x})(y+\frac{1}{y})=-4$ then $x^y + y^x = ?$
(a) 2 (b) 0 (c) -2 (d) 1
20. If $\frac{x^2}{y^3} + \frac{y^3}{x^2} = -2$, then $x^6 + y^9 + 3x^2y^3\{x^2 + y^3\} = ?$
(a) 0 (b) 4 (c) -2 (d) 1
21. If $x+\frac{1}{x} = 1$,
(i) $x^{78} + \frac{1}{x^{78}} = ?$
(ii) $x^{55} + \frac{1}{x^{55}} = ?$
(iii) $x^{50} + \frac{1}{x^{50}} = ?$
(iv) $x^{71} + \frac{1}{x^{71}} = ?$
(v) $x^{34} + \frac{1}{x^{34}} = ?$
(vi) $x^{203} + x^{200} + x^{188} + x^{185} + x^{140} + x^{137} + x^{102} + x^{99} + x^{100} + x^{98} = ?$
22. If $(\frac{x}{y}) + (\frac{y}{x})=1$, then what is the value of $(x^3 + y^3)$?
a)-1 (b)0
c)1 (d)3
23. If $x+\frac{1}{x} = 1$, then $(1+x+x^2)(1-x-x^2) = ?$
(a) 0 (b) 4 (c) -2 (d) 1
24. If $x^2 - x + 1 = 0$, then $x^{42} + \frac{1}{x^{37}} + x = ?$
(a) -2 (b) 4 (c) 2 (d) 6
25. If $x = -1-\frac{1}{x}$,
(i) $x^{200} - x^{197} + x^{160} - x^{157} + x^{94} - x^{91} + x^{76} - x^{73} + x^{15} - x^{12} + x^3 - 1 = ?$
(ii) $x^{27} + \frac{1}{x^{27}} = ?$
(iii) $x^{16} + \frac{1}{x^{16}} = ?$
(iv) $x^{35} + \frac{1}{x^{35}} = ?$
(v) $x^{18} + x^{15} + x^{12} + x^9 + x^6 + x^5 + x^4 + x^3 + 1 = ?$
26. If $x^5 + \frac{1}{x^5} = -1$, then $x^{105} - x^{90} + x^{65} + x^{30} - x^{50} - x^{15} + 1 = ?$
a)-1 (b)1 (c)4 (d)2
27. If $\frac{1}{x} + \frac{1}{2} = \frac{1}{x+2}$, then $x^{45} - 8x^{42} + x^3 + 3 = ?$
a)13 (b)12 (c)14 (d)11
28. If $x+\frac{1}{x} = -1$, then $(1-x+x^2)(1+x-x^2) = ?$
a)-1 (b)1 (c)4 (d)2
29. If $x^2 + x + 1 = 0$, then $x^{90} + \frac{1}{x^{58}} + x = ?$
a)0 (b)1 (c)4 (d)2
30. If $x+\frac{1}{x} + 1 = 0$, then $x^5 + x^4 + 3 = ?$
a)-1 (b)2 (c)4 (d)1
31. If $x+\frac{1}{x} = 1$ and $y + \frac{1}{y} = -1$, then $y^{3x} + x^{6y} = ?$
a)2 (b)1 (c)4 (d)0



- a)33 b)44 c)22 d)55
65. What is the value of x in the equation $\sqrt{\frac{1+x}{x}} - \sqrt{\frac{x}{1+x}} = \frac{1}{\sqrt{6}}$?
- a)-2 b)3 c)2 d)1
66. If $2\left[x^2 + \frac{1}{x^2}\right] - 2\left[x - \frac{1}{x}\right] - 8 = 0$, what are the two values of $\left(x - \frac{1}{x}\right)$?
- a)-1 or 2 b)1 or -2 c)-1 or -2 d)1 or 2
67. If $\left[a + \frac{1}{a}\right]^2 - 2\left[a - \left(\frac{1}{a}\right)\right] = 12$, then which of the following is a value of 'a'?
- (a) $-8 + \sqrt{3}$ (b) $\sqrt{5} - 2$
(c) $-8 + \sqrt{5}$ (d) $\sqrt{5} + 2$
68. If $3\sqrt{\frac{1-a}{a}} + 9 = 19 - 3\sqrt{\frac{a}{1-a}}$, then what is the value of a?
- (a) 3/10, 7/10 (b) 1/10, 9/10
(c) 2/5, 3/5 (d) 1/5, 4/5
69. If $a + b = 10$ and $\sqrt{\frac{a}{b}} - 13 = -\sqrt{\frac{b}{a}} - 11$, then what is the value of $3ab + 4a^2 + 5b^2$?
- (a) 450 (b) 300
(c) 600 (d) 750

ANSWER KEY: -

1.d	2.a	3.b	4.b	5.a	6.a	7.d	8.c	9.d	10.b
11.c	12.c	13.b	14.d	15.c	16.a	17.c	18.d	19.b	20.b
21.	22.b	23.b	24.c	25.	26.b	27.d	28.c	29.a	30.b
31.b	32.a	33.a	34.d	35.a	36.a	37.a	38.b	39.c	40.c
41.d	42.a	43.a	44.d	45.c	46.d	47.b	48.a	49.d	50.b
51.c	52.d	53.d	54.b	55.d	56.a	57.b	58.a	59.b	60.b
61.a	62.d	63.a	64.a	65.c	66.a	67.d	68.b	69.b	



1. If $(a-1)^2+(b+4)^2+(c-54)^2=0$ then find $\sqrt[3]{abc}=?$
a)-6 b)4 c)9 d)-9
2. If $(a-11)^2+(b-12)^2+(c+7)^2=0$ then $\sqrt{(a+b+c)}=?$
a)2 b)3 c) ± 4 d)4
3. If $(x-4)^2+(y-3)^2+(z+5)^2=0$ then $\frac{x^2}{8} + \frac{y^2}{18} + \frac{z^2}{50}=?$
a)4 b) $3\frac{1}{6}$ c) $4\frac{1}{5}$ d)3
4. If $(2a-1)^2 + (4b-3)^2 + (4c+5)^2=0$, then the value of $\frac{a^3+b^3+c^3-3abc}{a^2+b^2+c^2}$ is :
a) $3\frac{3}{8}$ b) $2\frac{3}{8}$ c)0 d) $1\frac{3}{8}$
5. If $a^2 + b^2 = 4b + 6a - 13$. Then what is the value of $a + b$?
(a) 3 (b) 2 (c) 5 (d) 10
6. If $(3x-4y)^2+(5y-2z)^2=0$ then find x: y: z=?
a) 8:6:15 b) 4:3:5 c) 8:3:5 d) 8:3:15
7. If $a^2+b^2+c^2=2(a-b-c)-3$, then $\frac{3a-4b+5c}{a^2+b^2+c^2}=?$
a) $\frac{3}{4}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{5}{4}$
8. If $a^2+b^2+c^2+14=2(a-2b+3c)$, then $4a-3b+2c=?$
a)8 b)12 c)16 d)20
9. If $10x^2 + y^2 + 6xy + 2x + 1 = 0$, then $3x+4y=?$
a)9 b)12 c)10 d)7
10. If $(a+b-6)^2+a^2+b^2+1+2b=2ab+2a$, then $a=?$
a)7 b)3.5 c)6 d)2.5
11. If $(a+b-c-3)^2+(b+c-a-8)^2+(c+a-b-5)^2=0$, then $\sqrt{(a+b+c)}=?$
a) $2\sqrt{2}$ b)3 c)4 d) $\sqrt{2}$
12. If $4a^2+9b^2+c^2=2(4a+3b-c)-6$ then find $a^2+b^2+c^2$
a) $2\frac{1}{9}$ b) $1\frac{1}{9}$ c) $3\frac{1}{9}$ d) $2\frac{2}{9}$
13. If $u^2+(u-2v-1)^2=-4v(u+v)$, then what is the value of $u+3v$?
a)0 b)1/4 c)-1/4 d)1/2
14. If $a + b^4 + z^3 - 3\sqrt{a} - 16b^2 + 4z\sqrt{z} + 70\frac{1}{4} = 0$, then $16a^2 + \sqrt{2}b - z^9 = ?$
a)25 b)21 c)16 d)27
15. If $a^8 + 9 = \frac{a^4}{b^2} [10b^2 - b^4 - 4]$ then $a^{12} + b^{10} = ?$
a)59 b)63 c)48 d)77
16. If $a^2+b^2=2a-\left(\frac{8b^2+1}{4b^2}\right)$ then find $8b^2+3a=?$
a)-1 b)0 c)2 d)4
17. If x and y are real numbers, the least possible value of the expression $4(x-2)^2 + 4(y-3)^2 - 2(x-3)^2$ is:
यदि x और y वास्तविक संख्याएं हैं, तो बहुपद $4(x-2)^2 + 4(y-3)^2 - 2(x-3)^2$ का न्यूनतम संभव मान है:
a)-8 b)-4 c)-2 d)0



18. $x^2 - \frac{15}{x} = 4$ and $x \neq 3$ find $x(x+1)(x+2)(x+3) = ?$

- a)12 b)15 c)21 d)27

19. $\sqrt{(500 \times 501 \times 502 \times 503 + 1)} = ?$

- a)250001 b)250151 c)250101 d)251501

20. If $x+y+xy=24$, $y+z+yz=35$ and $z+x+xz=80$, then find $\frac{x+y}{z} ?$

- a) $\frac{265}{294}$ b) $\frac{323}{294}$ c) $\frac{245}{294}$ d) $\frac{175}{294}$

21. If $x+y+xy=29$, $y+z+yz=41$ and $z+x+xz=34$, then find $3z-4x+5y ?$

- a)23 b)27 c)25 d)20

22. A and B are positive integers. If $A+B+AB=186$, then what is the difference between A and B ($A, B \leq 20$)

A और B धनात्मक पूर्णाक हैं। यदि $A + B + AB = 186$ है, तो A और B में क्या अंतर है? (जहां $A, B \leq 20$)

- a)7 b)8 c)5 d)6

23. If A and B are positive integers then $A-B-AB+67=0$ and $(1+B)(1+C)=96$ ($B < 10$), then

यदि A और B धनात्मक पूर्णाक हैं तो $A-B-AB + 67 = 0$ और $(1+B)(1+C) = 96$ (जहां $B < 10$), तब

- a) $A > C$ b) $A < C$ c) $A = C$ d) $C > A$

24. If x, y and z are prime numbers and $x+y+z=38$, then what is the maximum value of x?

यदि x, y और z अभाज्य संख्याएँ हैं और $x + y + z = 38$ हैं, तो x का अधिकतम मान क्या है?

- a)19 b)23 c)31 d)29

25. If $l+m+n = 13$, $l^2 + m^2 + n^2 = 75$, find $lm+mn+ln=?$

- a)49 b)43 c)42 d)47

26. If $x^2+y^2+z^2=74$ and $xy+yz+zx=61$ then $x+y+z=?$

- a)11 b)14 c)16 d)25

27. If $x^2+y^2+z^2=259$ and $x+y+z=19$ then $xy+z(x+y)=?$

- a)49 b)43 c)42 d)51

28. If $a+b+c=3$, $a^2+b^2+c^2=6$, and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}=1$, where a, b, c all are non zero integer then $abc=?$

यदि $a + b + c = 3$, $a^2+b^2+c^2=6$ और $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}=1$, जहाँ a, b, c सभी गैर शून्य पूर्णाक हैं तो $abc = ?$

- a) $\frac{2}{3}$ b) $\frac{3}{2}$
c) $\frac{1}{2}$ d) $\frac{1}{3}$

29. If $x + y + z = 22$ and $xy + yz + zx = 35$, then what is the value of $(x - y)^2 + (y - z)^2 + (z - x)^2$?

यदि $x + y + z = 22$ तथा $xy + yz + zx = 35$ है, तो $(x - y)^2 + (y - z)^2 + (z - x)^2$ का मान क्या है?

- (a) 793 (b) 681
(c) 758 (d) 715

30. if $a^2+2(b-1)(c-1)=73$, $b^2+2(c-1)(a-1)=75.5$, $c^2+2(a-1)(b-1)=78.5$ then find $a+b+c=?$

- a)16 b)17 c)18 d)19



31. If $\frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1$ and $\frac{a}{p} + \frac{b}{q} + \frac{c}{r} = 0$, where p, q, r and a, b, c are non-zero, then the value of $\frac{p^2}{a^2} + \frac{q^2}{b^2} + \frac{r^2}{c^2}$ is

यदि $\frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1$ और $\frac{a}{p} + \frac{b}{q} + \frac{c}{r} = 0$ जहाँ p, q, r और a, b, c गैर-शून्य हैं, तो $\frac{p^2}{a^2} + \frac{q^2}{b^2} + \frac{r^2}{c^2}$

मान है-

- a)-1 b)0 c)1 d)2

32. If $a+b+c=0$ and $a^2 + b^2 + c^2 = 14$, then $a^4 + b^4 + c^4 = ?$

- a)196 b)222 c)98 d)343

33. If $x \neq 0, y \neq 0$ and $z \neq 0$ and $\frac{1}{x^2} + \frac{1}{y^2} + \frac{1}{z^2} = \frac{1}{xy} + \frac{1}{yz} + \frac{1}{zx}$, then the relation among x, y, z is

- a) $x+y+z=0$ b) $x+y=z$ c) $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$ d) $x=y=z$

34. If $x^2 + y^2 + z^2 = xy + yz + zx$, then $\frac{3x^4 + 4y^4 + 8z^4}{x^2y^2 + y^2z^2 + x^2z^2} = ?$

- a)14 d) $3\frac{1}{2}$ c)9 d)5

35. If $(a + b + c)^2 = 3(a^2 + b^2 + c^2)$, then which of the following is necessary true?

- a) $a \neq b = c$ b) $a = b \neq c$ c) $a = b = c$ d) $a \neq b \neq c$

36. If $x^2 + y^2 + z^2 = 108$ and $x + y + z = 18$, then find $\frac{x-y+z}{x+y-z} = ?$

- a)6 d)3 c)1 d)2

37. If $x+y+z=4\sqrt{6}$ and $x^2 + y^2 + z^2 = 32$, then $x:y:z = ?$

- a)1:1:1 b)1:2:3 c)1:3:4 d)3:2:1

38. If $x+y+z=9\sqrt{5}$ and $x^2 + y^2 + z^2 = 135$, then $\frac{x^2+y^4}{z^3} = ?$

- a) $\frac{46\sqrt{5}}{15}$ b) $\frac{46\sqrt{5}}{5}$ c) $\frac{46\sqrt{5}}{9}$ d) $\frac{46\sqrt{3}}{9}$

39. If $a=996, b=997, c=998$, then find $a^2 + b^2 + c^2 - ab - bc - ca = ?$

- a)6 b)3 c)9 d)12

40. If $a=97.5, b=100, c=102.5$, then find $a^2 + b^2 + c^2 - ab - bc - ca = ?$

- a) $\frac{81}{4}$ b) $\frac{70}{4}$ c) $\frac{75}{4}$ d)15

41. Find $6637^2 + 6640^2 + 6642^2 - 6637 \times 6640 - 6640 \times 6642 - 6642 \times 6637 = ?$

- a)13 d)17 d)15 d)19

42. If $a=b=217, c=219$, then find $a^2 + b^2 + c^2 - ab - bc - ca = ?$

- a)4 b)9 c)1 d)16

43. If $a=x+y, b=x-y$ and $c=x-2y$ then find $a^2 + b^2 + c^2 - ab - bc - ca = ?$

- a) y^2 b) $3y^2$ c) $7y^2$ d) $8y^2$

44. If $a=299, b=298, c=297$ then the value of $2a^3 + 2b^3 + 2c^3 - 6abc = ?$

- a)5154 b)5267 c)5364 d)5456

45. If $a=199, b=202, c=205$, then find $a^3 + b^3 + c^3 - 3abc = ?$

- a)16362 b)24543 d)13090 d)14004

46. If $a=2344, b=2345, c=2346$, then find $a^3 + b^3 + c^3 - 3abc = ?$

- a)21105 b)18805 c)21145 d)20223

47. If $x=222, y=222, z=225$, then find $x^3 + y^3 + z^3 - 3xyz = ?$

- a)4950 b)5994 d)4683 d)6021

48. If $a=3.651, b=5.850$ and $c=2.199$, then $a^3 - b^3 + c^3 + 3abc = ?$



- a)2 b)9 c)1 d)0
- 49.If $a=713$ $b+c = 1429$ and $a^3 + b^3 + c^3 - 3abc = 6426$, then find $|b - c| = ?$
- a)-1 b)0 c)1 d)2
50. $\frac{(1.2)^3+(0.8)^3+(0.7)^3-2.016}{1.35[(1.2)^2+(0.8)^2+(0.7)^2-0.96-0.84-0.56]} = ?$
- a)1/4 b)1/2 c)1 d)2
- 51.If $a=2.84$, $b=3.64$ and $c=1.52$, then $\frac{a^3+b^3+c^3-3abc}{ab+bc+ca-(a^2+b^2+c^2)} = ?$
- a)-8 b)-27 c)8 d)27
- 52.If $x=999$, $y=1000$, $z=1001$, then $\frac{x^3+y^3+z^3-3xyz}{x+y+z} = ?$
- a)1 b)2 c)4 d)3
53. $(1111)^3 + (2222)^3 - (3333)^3 + (2222)(3333)^2 = ?$
- a)1 b)2 c)-1 d)0
- 54.If $(321)^3 + (325)^3 + (329)^3 - (321)(329)(975) = ?$
- a)46800 b)46150 c)40860 d)48900
- 55.If $a=5.39$, $b=1.658$ and $c=3.732$, then find $a^3 - b^3 - c^3 - 3abc = ?$
- a)2 b)0 c)1 d)-1
- 56.If $a=3.138$, $b=4.593$ and $c=-7.731$, then find $a^3 + b^3 + c^3 + 3abc = ?$
- a)0 b)111.42562 c)6abc d)3abc
57. $\frac{(\sqrt{4})^3+(\sqrt{12})^3+(\sqrt{7})^3-12\sqrt{21}}{23-4\sqrt{3}-2\sqrt{21}-2\sqrt{7}} = ?$
- a) $2 - 2\sqrt{3} - \sqrt{7}$ b) $2 + 4\sqrt{3} + 2\sqrt{7}$
- c) $4 + 2\sqrt{3} + \sqrt{7}$ d) $2 + 2\sqrt{3} + \sqrt{7}$
58. $\frac{(8)^{\frac{3}{2}}+(9)^{\frac{3}{2}}+(10)^{\frac{3}{2}}-36\sqrt{5}}{27-6\sqrt{2}-3\sqrt{10}-4\sqrt{5}} = ?$
- a) $2\sqrt{2} + 3 + \sqrt{10}$ b) $5 + \sqrt{10}$
- c) $4 + 3\sqrt{3} + \sqrt{10}$ d) $2 + 2\sqrt{3} + \sqrt{10}$
- 59.If $a=50$ and $b=49$ then find $\frac{a^3+b^3+1-3ab}{a^2+1+b^2-ab-a-b} = ?$
- a)50 b)100 c)10000 c)0
- 60.If $a=225$, $b=197$ and $c=178$, then find $\frac{a^3+b^3+c^3-3abc}{(a-b)^2+(b-c)^2+(c-a)^2} = ?$
- a)122 b)300 c)200 d)159
- 61.Find $\frac{(503)^3+(505)^3+(507)^3-3(503)(505)(507)}{1515} = ?$
- a)12 c)18 c)9 d)15
- 62.If $x^3 + y^3 + z^3 = 3xyz$ and x , y and z are positive integers then
- a) $x+y+z=0$ b) $x=y=z$ c) $x \neq y \neq z$ d) $xy+yz+zx=0$
- 63.If $a + b + c = 27$, then what is the value of $(a - 7)^3 + (b - 9)^3 + (c - 11)^3 - 3(a - 7)(b - 9)(c - 11) ?$
- यदि $a + b + c = 27$, तो $(a - 7)^3 + (b - 9)^3 + (c - 11)^3 - 3(a - 7)(b - 9)(c - 11)$ का मान क्या है?
- a)0 b)9 c)27 d)81
64. $\frac{1}{9} \left[\frac{(x-y)^2}{(y-z)(z-x)} + \frac{(y-z)^2}{(x-y)(z-x)} + \frac{(z-x)^2}{(x-y)(y-z)} \right] = ?$ [where, $x \neq y \neq z$]



- a)1 b)0 c) $\frac{1}{3}$ d) $\frac{1}{9}$
65. $x^a \cdot x^b \cdot x^c = 1$, then $a^3 + b^3 + c^3 = ?$
a)9 b)abc c)a+b+c d)3abc
66. If $a^3 - b^3 - c^3 = 0$, then $a^9 - b^9 - c^9 - 3a^3b^3c^3 = ?$
a)1 b)2 c)-1 d)0
67. If $x^{\frac{1}{3}} + y^{\frac{1}{3}} = z^{\frac{1}{3}}$, then $(x + y - z)^3 + 27xyz = ?$
a)-1 b)1 c)0 d)27
68. If $x=a(b-c)$, $y=b(c-a)$, $z=c(a-b)$, then $(\frac{x}{a})^3 + (\frac{y}{b})^3 + (\frac{z}{c})^3 = ?$
a) $\frac{xyz}{3abc}$ b)3xyzabc c) $\frac{3xyz}{abc}$ d) $\frac{xyz}{abc}$
69. If $4s=x+y+z$, then $(3s - x)^3 + (s - y)^3 + 3(3s - x)(s - y)z = ?$
a) z^3 b)- z^3 c) $2z^3$ d)0
70. $\frac{(x^2-y^2)^3+(y^2-z^2)^3+(z^2-x^2)^3}{(x-y)^3+(y-z)^3+(z-x)^3} = ?$
a) $(x^2 - y^2)(y^2 - z^2)(z^2 - x^2)$ b) $3(x-y)(8y-z)(z-x)$
c) $(x+y)(y+z)(z+x)$ d) $3(x-y)(y+z)(z+x)$
71. If $x+y+z=0$, then $\frac{x^2}{yz} + \frac{y^2}{zx} + \frac{z^2}{xy} = ?$
a)2 b)3 c)0 d)1
72. If $\left\{\frac{x^2}{yz}\right\} + \left\{\frac{y^2}{zx}\right\} + \left\{\frac{z^2}{xy}\right\} = 3$, then what is the value of $(x + y + z)^3, ?$
a)0 b)1 c)2 d)27
73. If $(a+b+c)=0$, then $(a + b - c)^3 + (c + a - b)^3 + (b + c - a)^3 = ?$
a) $-6(a^3 + b^3 + c^3)$ b) $(a^3 + b^3 + c^3)$ c)24abc d)-24abc
74. x, y and z are real numbers. If $x^3 + y^3 + z^3 = 13$, $x + y + z = 1$, and $xyz = 1$, then what is the value $xy + yz + zx$?
x, y और z वास्तविक संख्या हैं। यदि $x^3 + y^3 + z^3 = 13$, $x + y + z = 1$, और $xyz = 1$ है, तो $xy + yz + zx$ का मान क्या है?
(a) -1 (b) 1 (c) 3 (d) -3
75. If $(a + b + c) = 15$ and $a^2 + b^2 + c^2 = 153$, then $a^3 + b^3 + c^3 - 3abc = ?$
a)1755 b)1905 c)1605 d)2155
76. If $\left(\frac{1}{x}\right) + \left(\frac{1}{y}\right) + \left(\frac{1}{z}\right) = 0$ and $x+y+z=11$, what is the value of $x^3 + y^3 + z^3 - 3xyz$?
a)1331 b)2662 c)3993 d)14641
77. If $(a + b + c) = 100$, and $ab+bc+ca=100$, then what is the value of $a^3 + b^3 + c^3 - 3abc$?
a)7,29,000 b)9,27,000 c)9,03,000 d)9,70,000
78. If $(a + b + c) = 9$, and $ab+bc+ca=18$, then what is the value of $a^3 + b^3 + c^3 - 3abc$?
a)189 b)243 c)361 d)486
79. If $(x + y + z) = 12$, $xy+yz+zx=44$ and $xyz = 48$, then what is the value of $x^3 + y^3 + z^3$?
a)104 b)144 c)196 d)288
80. If $x+y=5$, $y + z=4$ and $z + x = 11$, then $x^3 + y^3 + z^3 = ?$
a)340 b)348 c)346 d)350
81. If $(a + b + c) = 11$ and $a^2 + b^2 + c^2 = 61$, then $(a + b + c)^3 - a^3 - b^3 - c^3 + 3abc = ?$
a)990 b)30 c)995 d)-990



31.c	32.c	33.d	34.d	35.c	36.c	37.a	38.a	39.b	40.c
41.d	42.a	43.c	44.c	45.a	46.a	47.d	48.d	49.c	50.d
51.a	52.d	53.d	54.a	55.b	56.a	57.d	58.a	59.b	60.b
61.a	62.b	63.a	64.c	65.d	66.d	67.c	68.c	69.a	70.c
71.b	72.a	73.d	74.d	75.a	76.a	77.d	78.b	79.d	80.a
81.a	82.b	83.b	84.b	85.a	86.c	87.b	88.b	89.a	90.b

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16. If $a+b+c=0$, then $\frac{a^2}{2a^2+bc} + \frac{b^2}{2b^2+ca} + \frac{c^2}{2c^2+ab} = ?$
 a) 0 b) 1 c) 3 d) 2

17. If $a+b+c=0$, then $\frac{a^2+b^2+c^2}{(a-b)^2+(b-c)^2+(c-a)^2} = ?$
 a) 1 b) 3 c) $\frac{1}{3}$ d) 0

18. If $a+b+c=0$, then $\frac{1}{a^2+b^2-c^2} + \frac{1}{b^2+c^2-a^2} + \frac{1}{c^2+a^2-b^2} = ?$
 a) $\frac{1}{a^2+b^2+c^2}$ b) 1 c) -1 d) 0

19. If $a+b+c=6$ and $ab+bc+ca=1$, then $bc(b+c)+ca(c+a)+ab(a+b)+3abc = ?$
 a) 3 b) 6 c) 5 d) 2

20. If $a+b+c=2s$, then $\frac{(s-a)^2+(s-b)^2+(s-c)^2-s^2}{a^2+b^2+c^2} = ?$
 a) $a^2+b^2+c^2$ b) 0 c) 1 d) 2

21. If $xy+yz+zx=0$, then $\left(\frac{1}{x^2-yz} + \frac{1}{y^2-zx} + \frac{1}{z^2-xy}\right) = ?$ ($x, y, z \neq 0$)
 a) 3 b) 1 c) $x+y+z$ d) 0

22. If $pq+qr+rp=0$, then $\left(\frac{p^2}{p^2-qr} + \frac{q^2}{q^2-rp} + \frac{r^2}{r^2-pq}\right) = ?$
 a) 3 b) 1 c) 2 d) 0

23. If $\frac{L}{M} + \frac{M}{N} + \frac{N}{L} = 0$ then, $\frac{NL}{M^2} + \frac{M^2}{LN} - \frac{N^2}{L^2} = ?$
 a) -1 b) 1 c) -2 d) 2

24. If $\frac{a}{b+c} + \frac{b}{c+a} + \frac{c}{a+b} = 1$, then find $\frac{a^2}{b+c} + \frac{b^2}{c+a} + \frac{c^2}{a+b} = ?$
 a) 0 b) -2 c) 3 d) 1

25. If $\left[\sqrt{(a^2 + b^2 + ab)}\right] + \left[\sqrt{(a^2 + b^2 - ab)}\right] = 1$, then what is the value of $(1-a^2)(1-b^2)$?

यदि $\left[\sqrt{(a^2 + b^2 + ab)}\right] + \left[\sqrt{(a^2 + b^2 - ab)}\right] = 1$ है , तो $(1-a^2)(1-b^2)$ का मान क्या है?

- (a) $\frac{1}{4}$ (b) $\frac{4}{7}$
 (c) $\frac{5}{4}$ (d) $\frac{3}{4}$

26. If $\sqrt{(1-p^2)(1-q^2)} = \frac{\sqrt{3}}{2}$, then what is the value of $\sqrt{2p^2 + 2q^2 + 2pq} + \sqrt{2p^2 + 2q^2 - 2pq}$?

यदि $\sqrt{(1-p^2)(1-q^2)} = \frac{\sqrt{3}}{2}$ है, तो $\sqrt{2p^2 + 2q^2 + 2pq} + \sqrt{2p^2 + 2q^2 - 2pq}$ का मान क्या है ?

- (a) 2 (b) $\sqrt{2}$
 (c) 1 (d) None of these

27. If $xy+yz+zx=1$, then $\frac{1+y^2}{(x+y)(y+z)} = ?$
 a) 0 b) 1 c) 2 d) 3

28. If $x = \left(\frac{a}{b}\right) + \left(\frac{b}{a}\right)$, $y = \left(\frac{b}{c}\right) + \left(\frac{c}{b}\right)$ and $z = \left(\frac{c}{a}\right) + \left(\frac{a}{c}\right)$, then what is the value of $xyz - x^2 - y^2 - z^2$?



यदि $x = \left(\frac{a}{b}\right) + \left(\frac{b}{a}\right)$, $y = \left(\frac{b}{c}\right) + \left(\frac{c}{b}\right)$ तथा $z = \left(\frac{c}{a}\right) + \left(\frac{a}{c}\right)$, है, तो $xyz - x^2 - y^2 - z^2$ का मान क्या है?

- (a) -4 (b) 2 (c) -1 (d) -6

29. If $a^2 + b^2 + c^2 = 16$, $x^2 + y^2 + z^2 = 25$ and $ax + by + cz = 20$, then $\frac{a+b+c}{x+y+z} = ?$

- a) $\frac{3}{5}$ b) $\frac{5}{3}$ c) $\frac{4}{5}$ d) $\frac{5}{4}$

30. If $a+b+c=4$, $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 3$, then $\frac{a}{b} + \frac{b}{a} + \frac{c}{a} + \frac{a}{c} + \frac{b}{c} + \frac{c}{b} = ?$

- a) 6 b) 7 c) 8 d) 9

31. If $\frac{x+1}{x-1} = \frac{a}{b}$ and $\frac{1-y}{1+y} = \frac{b}{a}$, then the value of $\frac{x-y}{1+xy}$ is

- a) $\frac{a^2-b^2}{ab}$ b) $\frac{a^2+b^2}{ab}$ c) $\frac{a^2-b^2}{2ab}$ d) $\frac{2ab}{a^2-b^2}$

32. If $a + b + c = abc$, then $\frac{(1-a^2)(1-b^2)}{ab} + \frac{(1-b^2)(1-c^2)}{bc} + \frac{(1-c^2)(1-a^2)}{ca} = ?$

यदि $a + b + c = abc$ है, तो $\frac{(1-a^2)(1-b^2)}{ab} + \frac{(1-b^2)(1-c^2)}{bc} + \frac{(1-c^2)(1-a^2)}{ca}$ का मान क्या है?

- (a) 0 (b) 2 (c) 4 (d) 3

33. If $bc+ca+ab=abc$, then $\frac{b+c}{bc(a-1)} + \frac{c+a}{ca(b-1)} + \frac{a+b}{ab(c-1)} = ?$

- a) 0 b) 1 c) 2 d) 3

34. If $xy+yz+zx=1$, then $\left(\frac{x+y}{1-xy} + \frac{y+z}{1-yz} + \frac{z+x}{1-zx}\right) = ?$

- a) xyz b) $\frac{1}{xyz}$ c) 1 d) 3

35. If $abc=1$, then $\frac{a+1}{ab+a+1} + \frac{b+1}{bc+b+1} + \frac{c+1}{ca+c+1} = ?$

- a) 1 b) 2 c) 3 d) $\frac{1}{3}$

36. If $\frac{x-a^2}{b+c} + \frac{x-b^2}{c+a} + \frac{x-c^2}{a+b} = 4(a+b+c)$, then find the value of x ?

- a) $(a+b+c)^2$ b) $a^2 + b^2 + c^2$ c) $ab+bc+ca$ d) $a^2 + b^2 + c^2 - ab - bc - ca$

37. If $\frac{m-a^2}{b^2+c^2} + \frac{m-b^2}{c^2+a^2} + \frac{m-c^2}{a^2+b^2} = 3$, then find the value of m ?

- a) $a^2 + b^2 - c^2$ b) $a^2 + b^2$
c) $a^2 + b^2 + c^2$ d) $a^2 - b^2 - c^2$

38. If $\frac{x^2+a^2+2c^2}{b+c} + \frac{x^2+b^2+2a^2}{c+a} + \frac{x^2+c^2+2b^2}{a+b} = 0$ then $x^2 = ?$

- a) $-(a+b+c)^2$ b) $-(a^2+b^2+c^2)$ c) $abc-a^2-b^2-c^2$ d) $-(ab+bc+ca)$

39. If $x^2 = y + z$, $y^2 = z + x$ and $z^2 = x + y$, then $\frac{1}{1+x} + \frac{1}{1+y} + \frac{1}{1+z} = ?$

- a) -1 b) 1 c) 2 d) 0

40. If $x^2 + y^2 = z + 1$, $y^2 + z^2 = x + 1$, $z^2 + x^2 = y + 1$, then $xyz = ?$

- a) -1 b) -1 or $-\frac{1}{8}$ c) 1 or $-\frac{1}{8}$ d) -1 or $\frac{1}{8}$



ANSWER KEY :-

1.a	2.c	3.a	4.c	5.b	6.a	7.c	8.a	9.b	10.c
11.a	12.b	13.c	14.b	15.d	16.b	17.c	18.d	19.b	20.c
21.d	22.b	23.c	24.a	25.d	26.b	27.b	28.a	29.c	30.d
31.c	32.c	33.b	34.b	35.b	36.a	37.c	38.b	39.b	40.c

CGL Aptitude Pathshala

TARGET SSC CGL PRE

<i>SUBJECT</i>	<i>SHEET No.</i>	<i>QUESTION NO.</i>
<i>PROFIT AND LOSS</i>	SHEET -01	1,2,3,4,6,8,11,12,13,14,15,16,17,20,21,22,23,24,25,26,27,28,29,30
	SHEET- 02	1,2,4,9,10,11,12,31
	SHEET -03	3,4,5,6,12,13,14,17,18,22,
	SHEET- 04	1,2,3,4,5,6,7,8,9,10,19,20,21,22,23,
	SHEET -05	1,2,3,4,5,6,7,8,9,10,11,12,13,19
	SHEET -06	1,7,8,14
	SHEET- 07	1,2,3,4,5,8,13,21
	SHEET -08	1,2,3,4,5,6
	SHEET -09	1,2,4,5,8,14,20,21,27,35,36
	SHEET -10	1,2,3,4,5,6,9,15,19,20,22,26,29,31
	SHEET -11	1,2,3,4,6,8,9,14,15,16,17,19,20,28,29,31,34,40,41
	SHEET -12	1,2,3,4,5,6,7,8,9,11,12,14,17,18,21,22,23,24,25,36,39,42,46,47,
	SHEET -13	1,2,3,5,6,7,12,19,20,21,22,25
<i>PERCENTAGE</i>	SHEET -01	1,2,3,4,5,7,8,11,12,13,14,15,16,19,20,26,27,31,34,35,37,39,41,42,44,45,46,47,48,49,
	SHEET -02	4,8,10,12,21,22,27,28,29,31,32,
	SHEET -03	2,3,4,5,6,7,8,9,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,32,33,35,36,38,39,40,42,43,45,48,49,50
	SHEET -04	4,5,7,8,9,10,12,17,18,19,22,23,24
	SHEET -05	13,14,15,16
	SHEET -06	1,2
	SHEET -07	9,13,23,26,31
	SHEET -08	1,2,3,4,5,6,8,9,13,14,18
	SHEET -09	1,4,5,

TARGET SSC CGL PRE

	SHEET -10	1,3,4,5,6
ALLIGATION	SHEET -01	1,2,3,4,5,7,8,9,11,13,14,17,18,20,23,25,30
	SHEET -02	1,5,8,10,16,18,21
	SHEET -03	1,5,6,13,14
	SHEET -04	1,2,7,8,10,12,13,15,21,29
	SHEET -05	3,4,6,10,11,12,13,15,16,17,18,19,24
MIXTURE	SHEET -01	1,2,4,8,9,11,12,15,16,17,19,20,22,26,33,
	SHEET -02	1,2,3,4,5,6,8,9,12,16,17,19
	SHEET- 03	3,4,8,16
	MISCELLANEOUS SHEET	1,2,3,7,12,17,
GEOMETRY	SHEET -01	1,2,3,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,27,28,29,31,33,34,48, 55,56
	SHEET -02	1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,18,19,20,21,22,23,24,28,29,31,32,33,34,37,39,41,42,43,45,49,51,52,54,55,56,57,59
	SHEET -03	1,2,3,4,5,6,8,11,15,17,23,28,51,52,60
	SHEET -04	2,3,4,5,8,9,12,13,14,15,16,19,21,22,27,28
	SHEET -05	12,13,18,21,22,26,28,29,37,42,45
	SHEET -06	1,2,9,13,18
	SHEET -07	1,7
	SHEET -08	5,16
	SHEET -09	1,2,8,9,45
	SHEET -10	1,17,35,36,45,48
	SHEET -11	1,2,7,8,15

TARGET SSC CGL PRE

	SHEET -12	1,2,3, 9,10,11,12,13,14,15,16,17,18,22,23,24,30,31, 35
	SHEET -13	2,5,7,8,13,21,25,37,38
	SHEET -14	1,2,3,4,5,8,10,11,20,21,22,23,24,26,27,28,30, 31,33,34,35,36
	SHEET -15	NONE
	SHEET -16	1,2,3,4,5,6,7,8,11,35
	SHEET -17	1,3,4,5,6,7,11,12,18,21,23,24,25,37
	SHEET -18	1,2,3,4,5,6,10,12,15,17,19,20,28
	SHEET -19	1,2,5,6,8 , 9,10,11,12,14,15,21,22,23,24
	SHEET -20	1,4,5,6,10,11,18,19,32
	SHEET -21	1,2,4,5,6,7,8,9,11,12,14,15,18,19,23
	SHEET -22	1,3,4,10,11,27,28,31,32
	SHEET -23	2,3,4,5,10,15,47
	SHEET -24	1,2,4,5,6,7,8,9,10,12,13,14,15,16,17,18,29,31 ,32,33,38,39,40,41,42,44,46,47,48,49,50,51,5 2,53,54,55,56
	SHEET -25	1,2,3,4,5,6,7,8,9,10,11,13,14,15,16,23,25
	SHEET -26	1, 3,4,5,6,7,9,13,20,23,24,25,29
	SHEET -27	1,2,3,4,6,9,15,16,22
	SHEET -28	1,2,3,4,5,6,7,8,9,10,12,25,29,30,33
	SHEET -29	1,2,3,4,6,7,13,14,20,21
MENSURATION	SHEET-01	1,2,3,4,5,6,7,8,10,11,12,13,15,22,24,26
	SHEET-02	1,2,7,8,9,16,19,26,27,28,29,33,34,35,36,37,3 8,39,40,41,44,46,47,48
	SHEET-03	1,2,3,4,5,6,7,8,15,40
	SHEET-04	1,2,3,4,5,6,7,8,9,10,11,13,14,15,17,20,24,27, 29,30,34,45

TARGET SSC CGL PRE

	SHEET-05	1,2,3,4,5,6,7,8,10,11,12,13,14,18,21,24,26,
	SHEET-06	1,2,3,4,5,6,7,8,10,11,12,13,15,16,18,20,21,22, ,28,29,30,32,34,35
	SHEET-07	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18, 19,20,21,22,23,24,25,29,30,31,32,33,35,38,39 ,41,44,46,47,49,50,52
	SHEET-08	1,2,3,4,5,6,8,9,11,14,15,16, 18,19,20,21,29,32,33,34,36,38,42,45,59,
	SHEET-09	1,2,3,4,5,6,7,8,9,12,14,17,22 ,24,26,27,28,29,31,32,33,39,44
	SHEET-10	1,2,3,4,7,8,9,10,12,16,17,19,20
	SHEET-11	1,2,3,4,11,23
RATIO & PROPORTION	SHEET-01	1-72
	SHEET -02	1,2,3,4,5,6,7,11,12,13,14,15,16,17,18,24,25,2 7, 29,30,31,32,35,40,
	SHEET -03	1,2,3,4,9,12,16,17,18,22,23,24,27
	SHEET -04	1,2,3,4,5,6,7,10,12,13,20
	MISCELLANEOUS SHEET -01	2,7,9,10,13,14,15,16,20,21,24,31,32,33,36,37 ,38
	MISCELLANEOUS SHEET -02	1,3,4,6,8,12,13,17,18,19,20,21,23,24,26,27, 33,34,41
TRIGONOMETRY	SHEET -1 (BASIC – 1)	2,3,5,9,11,13,14,17,24,26,27,28,49,52,56,58
	SHEET – 2 (BASIC – 2)	1,3,4,8,10,12,15
	SHEET – 3 IDENTITY-1	1,6,10,12,13,14,15,20,32,33,34,45,46,57,60

TARGET SSC CGL PRE

	SHEET-4 (IDENTITY-2/3)	3,4,6
	SHEET -5 (VALUE PUTTING)	1-20
	SHEET -6 (VALUE PUTTING)	1-30
	SHEET -7 (VALUE PUTTING)	11,42,43,44,45
	SHEET – 8 (FORMULAE BASED)	1,4,5
	SHEET-9 (FORMULAE BASED 20/30)	1,4,10,13
	SHEET-10	NONE
	SHEET -11 (MISC)	9,11,16,34,41
	SHEET -12 (MAXIMA/ MINIMA)	1,21
HEIGHT AND DISTANCE	SHEET-1	1,2,3,4,5,6,7,8,10,11,12,13,14,15,16,17,19,20 ,21,22,23,24,26,28,30,31,33
	SHEET-2	1,2,3,6,9,10,11,22,24,25
PARTNERSHIP	SHEET-1	1,5,8,11,12,15,20,25
	SHEET-2	1,2,4,6,7,19
TIME AND WORK	SHEET-1	1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,20,23,25, 30,32,33,34,38,40,41,44,45,46
	SHEET-2	1,2,3,4,5,6,8,10,12,15,16,17,21,22,23,26,27,2 8,32,33,34,38
	SHEET-3	4,5,9,12,14,15,16,19,21,23,24

TARGET SSC CGL PRE

	SHEET-4	1,2,4,5,6,7,8,9,14,18,22,23,24,27,30,32,34,39
	SHEET-5	1,3,6
PIPE AND CISTERN	SHEET-1	1,2,3,5,6,9,10,15,19,22,27,34
	SHEET-2	1,15
SIMPLE INTEREST	SHEET-1	1,2,3,4,5,6,7,8,9,10,11,12,13,15,19,23,26,28,36,37,39,41
	SHEET-2	1,6,9,12,14,20
COMPOUND INTEREST	SHEET-1	1,2,3,4,6,8,9,10,12,16,17,21,25,30,31,32,33,35,37,39,40,41,42,47,50,51,52,53,54,60,61,67,69,70,73,78,82,85,86,87,88,89,90,91,92,94,95,96,97,98,99,100,101
	SHEET-2	1,2,3,4,6,7,8,11,12,14,16,19,20,22,27,29,31,34,41
INSTALLMENT	SI INSTALLMENT	2,3,5,6,9,14,16,18,19,20,21
	CI INSTALLMENT	1,2,3,4,6,8
AVERAGE	SHEET-1	1,2,3,4,5,6,7,8,9,10,11,12,13,15,17,21,22,23,27,28,32,33,43,47,48,50,54,55,56,57,63,64
	SHEET-2	1,2,3,4,7,8,9,10,11,12,13,14,15,17,18,19,20,21,22,23,24,27,28,31,32,33,34,36,37,38,39,42,44,46,49,51,52,54,58,60,63,68,70,73,75

TARGET SSC CGL PRE

<i>TIME, SPEED AND DISTANCE</i>	SHEET-1	1,2,3,4,5,6,7,8,9,10,11,12,15,16,22,25,26,27,28,37,42,44,46,49	
	SHEET-2	2,5,6,8,9,10,11,12,14,16,21,32,44,46,49	
	SHEET-3	1,2,3,4,5,6,7,8,10,16,19,20,21,23,27,31,33,35,37	
<i>TRAIN</i>	SHEET-1	1,2,3,4,6,9,11,13,16,19,22,27,31,34,	
<i>BOAT AND STREAM</i>	SHEET-1	1,2,3,5,9,11,14,18,21,28,31,32,35,39	
<i>ALGEBRA</i>	SHEET-1	1-89	