1. If $x = 8(sin\theta + cos\theta) \& y = 9(sin\theta - cos\theta)$, then find the value of $\frac{x^2}{8^2} + \frac{y^2}{9^2}$?

यदि $x = 8(sin\theta + cos\theta) \& y = 9(sin\theta - cos\theta)$ है, तो $\frac{x^2}{8^2} + \frac{y^2}{9^2}$ का मान ज्ञात करें?

A) 4
B) 6
C) 8
D) 2

2. If x=asinθ-bcosθ, y=acosθ+bsinθ, then which of the following is true?

a) $\frac{x^2}{y^2} + \frac{a^2}{b^2} = 1$ b) $x^2+y^2=a^2- b^2$ c) $x^2+y^2=a^2+b^2$ d) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

3. If xcos A – y sinA = 1 and xsinA+ ycosA = 4, then the value of $17x^2 + 17y^2$ is:

यदि xcos A – y sinA = 1 and xsinA+ ycosA = 4 है तो $17x^2 + 17y^2$ का मान क्या है?

a) 7 b) 49 c) 0 d) 289

4. If x = 4cosA + 5sinA and y = 4sinA – 5cosA, then the value of $x^2 + y^2$ is: –

यदि x = 4cosA + 5sinA और y = 4sinA – 5cosA हो, तो $x^2 + y^2$ का मान ज्ञात कीजिए

a) 25 b) 16 c) 0 d) 41

5. If $6x = \sin\theta$ and $\frac{6}{x} = cos\ \theta$, then the value of $8\left(x^2 + \frac{1}{x^2}\right)$ is:

यदि 6x = sin θ और 6/x = cos θ है तो $8\left(x^2 + \frac{1}{x^2}\right)$का मान ज्ञात करें।

(a) 2 (b) $\frac{2}{9}$ (c) 4 (d) 1

6. $x = a + asin\alpha.cos\beta, y = b(1 + sin\alpha.sin\beta), z = c.cos\alpha$, then $\left(\frac{x-a}{a}\right)^2 + \left(\frac{y-b}{b}\right)^2 + \left(\frac{z}{c}\right)^2 = ?$

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

7. $(1 - sinA.cosA)(sinA + cosA) = ?$

a) $sin^2A - cos^2A$ b) $sin^3A + cos^3A$ c) $cos^2A - sin^2A$ d) 0

8. Find (1 / sinθ) – sinθ. SSC CGL 2023 PRE

ज्ञात कीजिए (1 / sinθ) – sinθ.

1. Cosθ cotθ 2. cosθ secθ 3. cosθ cosecθ 4. cosθ tanθ

9. If sin (A+B) = 1 and cos(A–B) = $\frac{\sqrt{3}}{2}$, A + B ☐ 90° and A > B, then the value of $\frac{5sin^2B+4tan^2A}{2sinBcosA}$ is:

यदि sin (A+B) = 1 और cos(A–B) = $\frac{\sqrt{3}}{2}$ है, A + B ☐ 90° और A > B है, तो $\frac{5sin^2B+4tan^2A}{2sinBcosA}$ का मान ज्ञात करें।

(a) 20
(b) $26\frac{1}{2}$
(c) 18
(d) $16\frac{1}{2}$

10. If sec x + cos x = 5/2, where x lies between 0° and 90°, then what is the value of sin²x?

यदि sec x + cos x = 5/2, जहाँ x, 0° और 90° के मध्य स्थित है, तो sin²x का मान क्या है?

(a) 3/4
(b) 1/2
(c) 1
(d) ¼

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11. If $\frac{\cot\theta+\cos\theta}{\cot\theta-\cos\theta}=\frac{k+1}{1-k}, k\neq 1$, then k is equal to:

यदि $\frac{\cot\theta+\cos\theta}{\cot\theta-\cos\theta}=\frac{k+1}{1-k}, k\neq 1$, है तो k का मान----------के बराबर है।

(a) $\sin\theta$

(b) $\text{cosec}\,\theta$

(c) $\cos\theta$

(d) $\sec\theta$

12. If $8\sin^2\theta+2\cos\theta=5, 0^o<\theta<90^o$, then the value of $\tan^2\theta+\sec^2\theta-\sin^2\theta$ will be:

यदि $8\sin^2\theta+2\cos\theta=5$है, $0^o<\theta<90^o$ है, तो $\tan^2\theta+\sec^2\theta-\sin^2\theta$ का मान ज्ञात करें।

(a) $\frac{305}{144}$

(b) $\frac{431}{144}$

(c) $\frac{23}{29}$

(d) $\frac{153}{72}$

13. If $6-4\sin^2\theta=7\sin\theta\cdot\cos\theta$ then find $\cot\theta$ =?

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{1}{3}$ (d) $\frac{3}{2}$

14. $(1+\sin\alpha)(1+\sin\beta)(1+\sin\gamma)=(1-\sin\alpha)(1-\sin\beta)(1-\sin\gamma)$

Then value of each side is:

(a) $\pm\sin\alpha\sin\beta\sin\gamma$ (b) $\pm\sec\alpha\cdot\sec\beta\sec\gamma$

(c) $\pm\cos\alpha\cdot\cos\beta\cdot\cos\gamma$ (d) $\pm\tan\alpha\cdot\tan\beta\cdot\tan\gamma$

15. $(1+\cos\alpha)(1-\sin\beta)(1+\cos\gamma)(1-\sin\delta)=(1-\cos\alpha)(1+\sin\beta)(1-\cos\gamma)(1+\sin\delta)$

then value of each term is =?

(a) $\pm\sin\alpha\sin\beta\sin\gamma\sin\delta$ (b) $\pm\sec\alpha\cdot\sec\beta\sec\gamma\sec\delta$

(c) $\pm\cos\alpha\cdot\sin\beta\cdot\cos\gamma\sin\delta$ (d) $\pm\sin\alpha\cdot\cos\beta\cdot\sin\gamma\cos\delta$

16. If $\sin\alpha+\cos\beta=2$, then $\cos\alpha+\sin\beta$ =?

(a) 0 (b) 1 (c) 2 (d) – 1

17. If cosA + cosB + cosC = 3, then what is the value of sinA + sinB + sinC?

यदि cosA + cosB + cosC = 3, तो sinA + sinB + sinC का मान क्या है?

(a) 1 (b)2 (c)0 (d) –1

18. If $A=2(\sin^6\theta+\cos^6\theta)-3(\sin^4\theta+\cos^4\theta)$ then the value of 3α such that $\cos\alpha=\sqrt{\frac{3+A}{5+A}}$ is:

यदि $A=2(\sin^6\theta+\cos^6\theta)-3(\sin^4\theta+\cos^4\theta)$ है तो $\cos\alpha=\sqrt{\frac{3+A}{5+A}}$ करने के लिए 3α का मान ज्ञात करें

(a) 45° (b) 135° (c) 180° (d) 90°

19. If $1+\cos x+\cos^2 x+\cos^3 x+\ldots\infty$ terms $=4+2\sqrt{3}$, then x =?

(a) 15° (b) 30° (c) 45° (d) 60°

20. **Find the value of $\sqrt{\frac{1-sin3\theta}{1+sin3\theta}}$?**

$\sqrt{\frac{1-sin3\theta}{1+sin3\theta}}$ का मान ज्ञात कीजिये?

A) $Sec3\theta - tan3\theta$
B) $(Sec3\theta - tan3\theta)^2$
C) $(Sec3\theta - tan3\theta)^2$
D) $Sec3\theta + tan3\theta$

21. $\frac{cos\theta}{\sec\theta-1} + \frac{cos\theta}{sec\theta+1}$ **is equal to:**

$\frac{cos\theta}{\sec\theta-1} + \frac{cos\theta}{sec\theta+1}$ का मान _____ के बराबर है।

(a) $2\sin^2\theta$ (b) $2\sec^2\theta$ (c) $2\cot^2\theta$ (d) $2\cos^2\theta$

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22. **The value of sin2□□(tan□+cot□) is:**

sin2□□(tan□+cot□) का मान क्या होगा?

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

23. **The value of $\frac{tan^2\theta-sin^2\theta}{2+tan^2\theta+cot^2\theta}$ is : –**

$\frac{tan^2\theta-sin^2\theta}{2+tan^2\theta+cot^2\theta}$ का मान क्या है?

a) $cosec^6\theta$ b) $cos^4\theta$ c) $sin^6\theta$ d) $sec^4\theta$

24. **Simplify the expression:** व्यंजक को सरल कीजिए।

$\frac{3-Sin^2A+Cos^2A}{2+2\,Cos^2A}$

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

25. **The value of $\sqrt{\frac{cosec\emptyset-cot\emptyset}{cosec\emptyset+cot\emptyset}} \div \frac{sin\emptyset}{1+cos\emptyset}$ is equal to:**

$\sqrt{\frac{cosec\emptyset-cot\emptyset}{cosec\emptyset+cot\emptyset}} \div \frac{sin\emptyset}{1+cos\emptyset}$ का मान बराबर है :

a) 1 b) $cosec\emptyset$
c) $sec\emptyset$ d) $\frac{1}{2}$

26. **The value of $\frac{2(sin^6\theta+cos^6\theta)-3(sin^4\theta+cos^4\theta)}{cos^4\theta-sin^4\theta-2cos^2\theta}$ is:**

$\frac{2(sin^6\theta+cos^6\theta)-3(sin^4\theta+cos^4\theta)}{cos^4\theta-sin^4\theta-2cos^2\theta}$ का मान है :

a) – 2 b) 1
c) – 1 d) 2

27. **The value of $\frac{\cos^6\theta+\sin^6\theta+3\sin^2\theta\cos^2\theta}{cosec\theta sec\theta(\sin\theta+\cos\theta-1)(\sin\theta+\cos\theta+1)}$ is:**

$\frac{\cos^6\theta+\sin^6\theta+3\sin^2\theta\cos^2\theta}{cosec\theta sec\theta(\sin\theta+\cos\theta-1)(\sin\theta+\cos\theta+1)}$ का मान ज्ञात कीजिए।

(a) 1 (b) 2

(c) $\frac{1}{2}$ (d) 3

28. The expression $\frac{(1-2sin^2\theta cos^2\theta)(cot\theta+1)cos\theta}{(sin^4\theta+cos^4\theta)(1+tan\theta)cosec\theta}$, $0°<\theta<90°$, is equal to:

व्यंजक $\frac{(1-2sin^2\theta cos^2\theta)(cot\theta+1)cos\theta}{(sin^4\theta+cos^4\theta)(1+tan\theta)cosec\theta}$ का मान बताइए जहां $0°<\theta<90°$ है।

(a) $cos^2\theta$ (b) $-sin^2\theta$
(c) $sec^2\theta$ (d) $-sec^2\theta$

29. $\frac{\sin^2\theta}{\cos\theta(1+\cos\theta)}+\frac{1+\cos\theta}{\cos\theta}=?$

(a) 2 cosθ (b) secθ
(c) 2 secθ (d) cosecθ

30. $\frac{\text{cosec}\theta}{\text{cosec}\theta-1}+\frac{\text{cosec}\theta}{\text{cosec}\theta+1}-\tan^2\theta$, $0° < \theta < 90°$, is equal to:

$\frac{\text{cosec}\theta}{\text{cosec}\theta-1}+\frac{\text{cosec}\theta}{\text{cosec}\theta+1}-\tan^2\theta$, $0° < \theta < 90°$, का मान ज्ञात करें।

(a) $2\sec^2\theta$
(b) $\sec^2\theta + 1$
(c) $\sec^2\theta$
(d) $1-\tan^2\theta$

31. What is the value of $sinA\left(1+\frac{sinA}{cosA}\right)+cosA(1+\frac{cosA}{sinA})$?

$sinA\left(1+\frac{sinA}{cosA}\right)+cosA(1+\frac{cosA}{sinA})$ का मान क्या है?

A) secA + cosecA
B) SinA + cosA
C) Sin A – cosA
D) SecA – cosecA
E)

32. $\left(\frac{cos\,ecA}{cot\,A+tan\,A}\right)^2=?$

a) $2\,cos^2\,A$ b) $1-sin^2\,A$
c) $sec^2\,A$ d) $sec\,A\cdot tan\,A$

33. value of $\cos^2(90°-\theta)-\left[\frac{\{\cos(90°-\theta)cos\theta\}}{cot\theta}\right]$?

$\cos^2(90°-\theta)-\left[\frac{\{\cos(90°-\theta)cos\theta\}}{cot\theta}\right]$ का सरलीकृत मान क्या है?

(a) 4
(b) 2
(c) 0
(d) 1

34. Solve $\frac{(1-sin\theta+cos\theta)^2}{2}$:

(a) (1-cosθ)(1-sinθ) (b) (1+cosθ)(1-sinθ)
(c) (1+cosθ)(1+sinθ) (d) (1-cosθ)(1+sinθ)

35. Simplify : $\frac{(sin\theta+sec\theta)^2+(cos\theta+cosec\theta)^2}{(1+sec\theta coec\theta)^2}$, $0° < \theta < 90°$

$\frac{(sin\theta+sec\theta)^2+(cos\theta+cosec\theta)^2}{(1+sec\theta coec\theta)^2}$, $0° < \theta < 90$ का मान ज्ञात करें।

(a) 0

(b) 2

(c) –1

(d) 1

36. If cos A, sin A, Cot A are in geometric progression, then the value of $\tan^6 A-\tan^2 A$ is:

अगर cos A, sin A, Cot A गुणोत्तर श्रेणी में है तो $\tan^6 A-\tan^2 A$ का मान क्या होगा।

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

37. If sin x + cos x = c, then $\sin^6 x + \cos^6 x$ is equal to:

a) $\frac{1+6c^2-3c^4}{16}$ b) $\frac{1+6c^2-3c^4}{4}$ c) $\frac{1+6c^2+3c^4}{16}$ d) $\frac{1+6c^2+3c^4}{4}$

38. $\sqrt{\frac{cos\,ecA}{cos\,ecA-1}+\frac{cos\,ecA}{cos\,ecA+1}} = 2$, then A=?

a) $\frac{\pi}{2}$ b) $\frac{\pi}{3}$

c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$

39. If $\frac{(1+\sin\theta-\cos\theta)}{(1+\sin\theta+\cos\theta)}+\frac{(1+\sin\theta+\cos\theta)}{(1+\sin\theta-\cos\theta)} = 4$, then which of the following values will be suitable for θ?

अगर $\frac{(1+\sin\theta-\cos\theta)}{(1+\sin\theta+\cos\theta)}+\frac{(1+\sin\theta+\cos\theta)}{(1+\sin\theta-\cos\theta)} = 4$ है, तो लिस्नलिखित में से कौन सा मान θ के लिए सही होगा?

(a) 90° (b) 60° (c) 45° (d) 30°

40. If $sin\,\theta + sin^2\,\theta = 1$ then $cos^2\,\theta + cos^4\,\theta$ =?

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

41. If $sin\,\theta + sin^2\,\theta = 1$ then $cos^4\,\theta + cos^8\,\theta + 2\,cos^6\,\theta$ =?

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

42. If $sin\,\theta + sin^2\,\theta = 1$, Then $cos^{12}\,\theta + 3\,cos^{10}\,\theta + 3\,cos^8\,\theta + cos^6\,\theta - 1$ =?

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

43. If cos A = $\sin^2$A, and a $\sin^{12}$A + b $\sin^{10}$A + c $\sin^8$A + $\sin^6$ A = 1, then a + b + c = ?

यदि cos A = $\sin^2$A और a $\sin^{12}$A + b $\sin^{10}$A + c $\sin^8$A + $\sin^6$ A = 1 है तो a + b + c =?

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

44. If cosθ+ $\cos^2\theta$ = 1, find the value of $\sqrt{sin^4\theta + cos^2\theta}$.

यदि cosθ + $\cos^2\theta$ = 1 है, तो $\sqrt{sin^4\theta + cos^2\theta}$ का मान ज्ञात कीजिए।

(a) $\sqrt{2}$cosθ

(b) 2 cosθ

(c) $\sqrt{2}$sinθ

(d) 2 sinθ (SSC CGL 2022)

45. If sin A+ $\sin^2$ A = 1 , then the value of $\cos^4$ A + $\cos^6$ A is:

यदि sin A+ $\sin^2$A = 1 है, तो $\cos^4$A + $\cos^6$A का मान क्या होगा?

(a) 1 (b) cos A (c) sin A (d) 0

(SSC CPO 2023)

46. If $\frac{cos\,\alpha}{cos\,\beta} = a, \frac{sin\,\alpha}{sin\,\beta} = b$, then $sin^2\,\beta$ =?

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

47. Tanα=ntanβ, sinα=msinβ, then $cos^2\alpha$ =?

a) $\frac{m^2}{n^2+1}$ b) $\frac{m^2-1}{n^2-1}$ c) $\frac{m^2+1}{n^2+1}$ d) $\frac{m^2}{n^2}$

48. If $cos\,\theta + cos^2\theta + cos^3\theta = 1$, then $sin^6\theta - 4\,sin^4\theta + 8\,sin^2\theta + 3$ =?

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

49. If $tanx = \frac{sin\theta+cos\theta}{sin\theta-cos\theta}, \frac{\pi}{4} < 0 < \frac{\pi}{2}$, then what is $\sqrt{2}sinx$ equal to?

यदि $tanx = \frac{sin\theta+cos\theta}{sin\theta-cos\theta}, \frac{\pi}{4} < 0 < \frac{\pi}{2}$, तो √2 sinx किसके बराबर है? (CDS 2023)

A) $sin\theta + cos\theta$
B) $sin\theta - cos\theta$
C) $\frac{sin\theta+cos\theta}{2}$
D) $\frac{sin\theta-cos\theta}{2}$

50. If $tan\,\theta = \frac{sin\,\alpha-cos\,\alpha}{sin\,\alpha+cos\,\alpha}$, Then $sin\,\alpha + cos\,\alpha$ =?

(a) $\pm\sqrt{2}\ sin\,\theta$ (b) $\pm\sqrt{2}\ cos\,\theta$
(c) $\pm\sqrt{2}\ tan\,\theta$ (d) $\pm\sqrt{2}\ cot\,\theta$

51. If –sinθ + cosecθ = 6, then what is the value of sin□ + cosec□ ?

यदि –sinθ + cosecθ = 6, तो sinθ+ cosecθका मान क्या है?

(a) 6
(b) $\sqrt{40}$
(c) $\sqrt{34}$
(d) $\sqrt{38}$

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52. If $a\,sin\,\theta + b\,cos\,\theta = c$ then $a\,cos\,\theta - b\,sin\,\theta$ =?

(a) $\pm\sqrt{a^2+b^2+c^2}$ (b) $\pm\sqrt{a^2+b^2-c^2}$
(c) $\pm\sqrt{a^2-b^2-c^2}$ (d) $\pm\sqrt{a^2-b^2+c^2}$

53. If $3sin\theta + 5cos\theta = 5$, then what is the value of $5sin\theta - 3cos\theta$ equal to?

यदि 3sinθ+5cosθ=5, तो 5sinθ-3cosθ का मान किसके बराबर है? (CDS 2023)

A) 5
B) -3
C) -2
D) 0

54. If $3sinx + 4cosx = 2$, then the value of $3cosx - 4sinx$ is equal to:

यदि 3 sinx + 4 cosx = 2 है, तो 3 cosx – 4 sinx का मान ज्ञात कीजिए।

(a) $\sqrt{21}$ (b) $\sqrt{23}$ (c) 21 (d) $\sqrt{29}$

55. Secθ(cosθ +sinθ) = √2 then what is the value of $\frac{2sin\theta}{cos\theta-sin\theta}$?

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

56. If $sinA - \sqrt{6}cosA = \sqrt{7}cosA$, then find $cosA + \sqrt{6}sinA$?

यदि $sinA - \sqrt{6}cosA = \sqrt{7}cosA$ है, तो $cosA + \sqrt{6}sinA$ ज्ञात कीजिये?

A) $\sqrt{6}sinA$
B) $\sqrt{6}cosA$

C) $\sqrt{7}sinA$

D) $\sqrt{7}cosA$

57. If $(a^3+b^3)\sin\theta + (a^3-b^3)\cos\theta = 7$ and $(a^3+b^3)\cos\theta - (a^3-b^3)\sin\theta = 5$, then a^6+b^6=?

(a) 24 (b) 37 (c) 35 (d) 49

58. If $\cos27^0 + \sin27^0 = k$, then what is the value of $\cos^2 27^0 - \sin^2 27^0$?

यदि $\cos27^0 + \sin27^0 = k$ है तो $\cos^2 27^0 - \sin^2 27^0$ का मान क्या है?

(a) $k\sqrt{2-k^2}$ (b) $k\sqrt{k^2-2}$ (c) $k\sqrt{1-k^2}$ (d) $k\sqrt{k^2-1}$

59. If $\cos41^0 + \sin41^0 = k$, then what is the value of $\cos^3 41^0 - \sin^3 41^0$?

यदि $\cos41^0 + \sin41^0 = k$ है तो $\cos^3 41^0 - \sin^3 41^0$ का मान क्या है?

(a) $\frac{(k^2+1)}{2}\sqrt{2-k^2}$ (b) $\frac{(k^2+1)}{2}\sqrt{k^2-2}$

(c) $\frac{(k^2-1)}{2}\sqrt{2-k^2}$ (d) $\frac{(k^2-1)}{2}\sqrt{k^2-1}$

60. If $\sin\theta - \cos\theta = \frac{1}{5}$, then find the value of $\sin\theta + \cos\theta$.

यदि $\sin\theta - \cos\theta = \frac{1}{5}$, तो $\sin\theta + \cos\theta$ का मान ज्ञात कीजिए।

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

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61. If $sin\theta + cos\theta = \frac{\sqrt{11}}{3}$, then find $cos\theta - sin\theta$?

यदि $sin\theta + cos\theta = \frac{\sqrt{11}}{3}$, तो cosθ−sinθ ज्ञात कीजिए? **(CPO 2023)**

a)$\frac{\sqrt{5}}{3}$ b)7/3 c)5/3 d)$\frac{\sqrt{7}}{3}$

62. If $\sin\theta + \cos\theta = \frac{23}{17}$, Then $\sin\theta - \cos\theta$ =?

(a) $\pm\frac{15}{17}$ (b) $\pm\frac{9}{17}$ (c) $\pm\frac{6}{17}$ (d) $\pm\frac{7}{17}$

63.

If $\sin\theta - \cos\theta = \frac{1}{29}$ find the value of $\sin\theta + \cos\theta$.

यदि $\sin\theta - \cos\theta = 1/29$ है तो $\sin\theta + \cos\theta$ का मान ज्ञात करें।

(a) $\frac{41}{29}$ (b) $\frac{42}{29}$ (c) $\frac{22}{29}$ (d) $\frac{2}{29}$

64. $12\sin\theta + 35\cos\theta = 37$, then $35\sin\theta - 12\cos\theta$ =?

(a) 0 (b) 1 (c) 37 (d) 12

65. $24\sin\theta + 7\cos\theta = 25$, then $7\sin\theta + 24\cos\theta$ =?

(a) 25 (b) 336/25 (c) 317/24 (d) 275/7

66. If $11sin\theta + 60cos\theta = 61; 0 < \theta < 90°$, then what is the value of $\sqrt{660(tan\theta + cot\theta)}$?

यदि $11\sin\theta+60\cos\theta=61; 0<\theta<90°$, तो $\sqrt{660(tan\theta + cot\theta)}$ का मान क्या है?

A) 61

B) $61\sqrt{2}$

C) 122

D) $122\sqrt{2}$

67. $(a^2-b^2)\sin\theta + 2ab\cos\theta = a^2+b^2$, then $\tan\theta$ =?

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

68. If $\frac{\sin^4 A}{a} + \frac{\cos^4 A}{b} = \frac{1}{a+b}$, Then $\frac{\sin^8 A}{a^3} + \frac{\cos^8 A}{b^3}$ =?

(a) $\frac{1}{(a+b)^2}$ (b) $\frac{a^2b^2}{(a+b)^2}$
(c) $\frac{1}{(a+b)^3}$ (d) $\frac{a^3b^3}{(a+b)^2}$

69. If $24\sin^4\alpha + 40\cos^4\alpha = 15$, Then $54\tan^6\alpha + 125\text{cosec}^6\alpha$ =?
(a) 729 (b) 762 (c) 716 (d) 625

70. If $\frac{\cos^4\alpha}{\cos^2\beta} + \frac{\sin^4\alpha}{\sin^2\beta} = 1$, then $\frac{\cos^4\beta}{\cos^2\alpha} + \frac{\sin^4\beta}{\sin^2\alpha}$ =?
(a) 1 (b) 2 (c) 0 (d) – 1

71. The value of $\frac{\sec\emptyset(1-\sin\emptyset)(\sin\emptyset+\cos\emptyset)(\sec\emptyset+\tan\emptyset)}{\sin\emptyset(1+\tan\emptyset)+\cos\emptyset(1+\cot\emptyset)}$ is equal to

$\frac{\sec\emptyset(1-\sin\emptyset)(\sin\emptyset+\cos\emptyset)(\sec\emptyset+\tan\emptyset)}{\sin\emptyset(1+\tan\emptyset)+\cos\emptyset(1+\cot\emptyset)}$ का मान बराबर है :
a) cosecØsecØ b) sinØcosØ
c) 2cosØ d) 2sinØ

72. $\sin^4\theta + \cos^4\theta$ in terms of $\sin\theta$ can be written as:

$\sin^4\theta + \cos^4\theta$ को sinθ के रूप में लिखा जा सकता है:
A) $2\sin^4\theta + 2\sin^2\theta - 1$
B) $2\sin^4\theta - 2\sin^2\theta$
C) $2\sin^4\theta - 2\sin^2\theta - 1$
D) $2\sin^4\theta - 2\sin^2\theta + 1$

73. If $l\cos^2\theta + m\sin^2\theta = \frac{\cos^2\theta(\text{cosec}^2\theta+1)}{\text{cosec}^2\theta-1}$, $(where\ 0° < \theta < 90°)$, then find the value of $\tan\theta$?

यदि $l\cos^2\theta + m\sin^2\theta = \frac{\cos^2\theta(\text{cosec}^2\theta+1)}{\text{cosec}^2\theta-1}$, $(where\ 0° < \theta < 90°)$है, तो $\tan\theta$ का मान ज्ञात कीजिये?
A) $\sqrt{\frac{l-2}{l-m}}$ C) $\sqrt{\frac{2-l}{l-m}}$
B) $\sqrt{\frac{l-2}{m-1}}$ D) $\sqrt{\frac{l-1}{2-m}}$

74. If $\theta = 53°$ then $\frac{1}{2}\sqrt{1+\sin\theta} + \sqrt{1-\sin\theta}$ is equal to?

यदि θ = 53°, तो $\frac{1}{2}\sqrt{1+\sin\theta} + \sqrt{1-\sin\theta}$ किसके बराबर है?
(a) $\cot\frac{\theta}{2}$ (b) $\sec\frac{\theta}{2}$ (c) $\sin\frac{\theta}{2}$ (d) $\cos\frac{\theta}{2}$

75. If $\cos^2\theta - \sin^2\theta = \tan^2\varphi$, then which of the following is true?
यदि $\cos^2\theta - \sin^2\theta = \tan^2\varphi$ है, तो निम्नलिखित में से कौन सा विकल्प सही है?
(a) $\cos\theta\cos\varphi = 1$ (b) $\cos^2\varphi - \sin^2\varphi = \tan^2\theta$
(c) $\cos^2\varphi - \sin^2\varphi = \cot^2\theta$ (d) $\cos\theta\cos\varphi = \sqrt{2}$