TRIGONOMETRY-06

CONCEPT OF
VALUE PUTTING

BY ADITYA RANJAN

Maths By Aditya Ranjan

Rankers Gurukul

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MATHS EXPERT

TRIGONOMETRY (Practice Sheet –6)

Questions which can be solved by using options & assuming values

1. $\frac{2+\tan^2\theta+\cot^2\theta}{\sec\theta.\operatorname{cosec}\theta}$ is equal to :

SSC CGL 4 June 2019 (Morning)

(a) $\cot\theta$ (b) $\cos\theta.\sin\theta$
(c) $\sec\theta.\operatorname{cosec}\theta$ (d) $\tan\theta$

2. The value of θ when $\sqrt{3}\cos\theta+\sin\theta=1$ $(0°\le\theta\le 90°)$, is

SSC CGL 4 June 2019 (Evening)

(a) 90° (b) 60°
(c) 30° (d) 0°

3. The value of $\sqrt{\sec^2\theta+\operatorname{cosec}^2\theta}\times\sqrt{\tan^2\theta-\sin^2\theta}$ is equal to :

SSC CGL 6 June 2019 (Morning)

(a) $\operatorname{cosec}\theta.\sec^2\theta$ (b) $\sin\theta.\sec^2\theta$
(c) $\sin\theta.\cos^2\theta$ (d) $\operatorname{cosec}\theta.\cos^2\theta$

4. $(\operatorname{cosec}A-\sin A)^2+(\sec A-\cos A)^2-(\cot A-\tan A)^2$ is equal to :

SSC CPO 2018, 16 March 2019 (Evening)

(a) 2 (b) 0
(c) 1 (d) – 1

5. If $3\sin\theta=2\cos^2\theta$, $0°<\theta<90°$, then the value of $(\tan^2\theta+\sec^2\theta-\operatorname{cosec}^2\theta)$ is :

SSC CGL 10 June 2019 (Morning)

(a) – 2 (b) $-\frac{7}{3}$
(c) $\frac{7}{3}$ (d) 2

6. If $\sin\theta.\sec^2\theta=\frac{2}{3}$, $0°<\theta<90°$, then the value of $(\tan^2\theta+\cos^2\theta)$ is :

SSC CHSL 3 July 2019 (Morning)

(a) $\frac{7}{6}$ (b) $\frac{11}{12}$
(c) $\frac{13}{12}$ (d) $\frac{5}{4}$

7. Let $a=\frac{2\sin x}{1+\sin x+\cos x}$ and $b=\frac{c}{1+\sin x}$. If a = b then c = ?

SSC CGL 6 June 2019 (Afternoon)

(a) $1-\sin x.\cos x$ (b) $1+\sin x-\cos x$
(c) $1+\sin x.\cos x$ (d) $1+\cos x.\sin x$

8. If $\frac{\cos\alpha}{\sin\alpha+\cos\beta}+\frac{\cos\beta}{\sin\beta-\cos\alpha}=\frac{x}{\sin\alpha-\cos\beta}+\frac{\cos\beta}{\sin\beta+\cos\alpha}$, then x is equal to :

SSC CHSL 8 July 2019 (Morning)

(a) $\cos\beta$ (b) $\cos\alpha$
(c) $\sin\beta$ (d) $\sin\alpha$

9. The value of the expression $(\cos^6\theta+\sin^6\theta-1)(\tan^2\theta+\cot^2\theta+2)$ is :

SSC CGL Tier-II (11 September, 2019)

(a) 0 (b) – 1
(c) – 3 (d) 1

10. $\frac{(2\sin A)(1+\sin A)}{1+\sin A+\cos A}$ is equal to :

SSC CGL Tier-II (11 September, 2019)

(a) $1+\sin A-\cos A$ (b) $1-\sin A.\cos A$
(c) $1+\cos A-\sin A$ (d) $1+\sin A.\cos A$

11. The value of $\tan^2\varphi+\cot^2\varphi-\sec^2\varphi.\operatorname{cosec}^2\varphi$ is equal to :

SSC CGL Tier-II (12 September, 2019)

(a) – 2 (b) 1
(c) 0 (d) – 1

12. The value of $(1+\cot\theta-\operatorname{cosec}\theta)(1+\cos\theta+\sin\theta)\sec\theta$ = ?

SSC CGL Tier-II (13 September, 2019)

(a) – 2 (b) 2
(c) $\sec\theta.\operatorname{cosec}\theta$ (d) $\sin\theta.\cos\theta$

13. The value of

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

SSC CGL Tier-II (13 September, 2019)

(a) – 1 (b) – 2
(c) 2 (d) 1

14. The value of $\frac{1-\sin^2\theta\cos^2\theta}{\sin^4\theta+\cos^4\theta}-1$ is :

SSC CGL 7 March 2020 (Morning)

(a) $-2\sin^2\theta\cos^2\theta$ (b) -1

(c) 0 (d) 1

15. 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 ?

SSC CHSL 13/10/2020 (Afternoon)

(a) 90° (b) 60°

(c) 45° (d) 30°

16. If x = cosecA + cosA and y = cosecA – cosA, then find the value of

$$\left(\frac{2}{x+y}\right)^2+\left(\frac{x-y}{2}\right)^2-1.$$

SSC CHSL 19/10/2020 (Morning)

(a) 3 (b) 0

(c) 2 (d) 1

17. The value of $(\tan^2A+\cot^2A-2)-\sec^2A\operatorname{cosec}^2A$ is :

CGL 2019 Tier-II (16/10/2020)

(a) – 4 (b) – 1

(c) 1 (d) 4

18. The value of $\frac{\sin\theta+\cos\theta-1}{\sin\theta-\cos\theta+1}\times\sqrt{\frac{1+\sin\theta}{1-\sin\theta}}$

CGL 2019 Tier-II (16/10/2020)

(a) 1 (b) – 1

(c) – 2 (d) 2

19. $\frac{\sec A(\sec A+\tan A)(1-\sin A)}{(\operatorname{cosec}^2A-1)\sin^2A}$ is equal to :

CGL 2019 Tier-II (16/10/2020)

(a) $\sec^2A$ (b) $\cos^2A$

(c) $\cot A$ (d) $\cos A$

20. The value of $3(\sin x-\cos x)^4+6(\sin x+\cos x)^2+4(\sin^6x+\cos^6x)$ is :

(a) 14 (b) 11

(c) 12 (d) 13

21. The value of the following is : $3(\sin^4\theta+\cos^4\theta)+2(\sin^6\theta+\cos^6\theta)+12\sin^2\theta.\cos^2\theta$

(a) 0 (b) 3

(c) 2 (d) 5

22. If $x=a(\sin\theta+\cos\theta)$, $y=(\sin\theta-\cos\theta)$, then the value of $\frac{x^2}{a^2}+\frac{y^2}{b^2}$ is :

(a) 0 (b) 1

(c) 2 (d) – 2

23. If $x=a\sec\theta\cos\phi$, $y=b\sec\theta.\sin\phi$, $z=c\tan\theta$, then the value of $\frac{x^2}{a^2}+\frac{y^2}{b^2}-\frac{z^2}{c^2}$ is :

SSC CHSL 15/10/2020 (Evening)

(a) 1 (b) 4

(c) 9 (d) 0

24. If $(1+\sin\alpha)(1+\sin\beta)(1+\sin\gamma)=(1-\sin\alpha)(1-\sin\beta)(1-\sin\gamma)$, then each side is equal to :

(a) $\pm\cos\alpha.\cos\beta.\cos\gamma$

(b) $\pm\sin\alpha.\sin\beta.\sin\gamma$

(c) $\pm\sin\alpha.\cos\beta.\cos\gamma$.

(d) $\pm\sin\alpha.\sin\beta.\cos\gamma$

25. If $\operatorname{cosec}\theta-\sin\theta=x$ and $\sec\theta-\cos\theta=y$, then

$$x^{\frac{2}{3}}y^{\frac{2}{3}}\left(x^{\frac{2}{3}}+y^{\frac{2}{3}}\right)=?$$

(a) 0 (b) 1

(c) – 1 (d) 2

26. If $\sin\theta+\sin2\theta=x$ and $\cos\theta+\cos2\theta=y$, then $(x^2+y^2)(x^2+y^2-3)=?$

(a) $2y$

(b) $3y$

(c) $-2y$

(d) $4y$

27. If A, B, C are the agles of a triangle, then the value of expression$\sin^2A+\sin^2B+\sin^2C-2\cos A.\cos B.\cos C=?$

(a) 1 (b) 2

(c) 3 (d) 4

28. $1+\cos2x+\cos4x+\cos6x=?$

(a) $2\cos x.\cos2x.\cos3x$

(b) $4\sin x.\cos2x.\cos3x$

(c) $4\cos x.\cos2x.\cos3x$

(d) $\cos x.\cos2x.\cos3x$

29. What is the value of $\sin(B-C)\cos(A-D)+\sin(A-B)\cos(C-D)+\sin(C-A)\cos(B-D)$?

(a) $\frac{3}{2}$ (b) – 3

(c) 1 (d) 0

30. If P + Q + R = 60°, then what is the value of cosQ.cosR (cosP – sinP) + sinQ.sinR (sinP – cosP)

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

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

31. What is the value of

$$\frac{[\sin(y-z)+\sin(y+z)+2\sin y]}{[\sin(x-z)+\sin(x+z)+2\sin x]}?$$

(a) $\cos x.\sin y$ (b) $\frac{\sin y}{\sin x}$

(c) $\sin z$ (d) $\sin x.\tan y$

32. If $\frac{\tan\theta}{1-\cot\theta}+\frac{\cot\theta}{1-\tan\theta}=1+k$, then k = ?

SSC CGL 7 June 2019 (Evening)

(a) $\cot\theta+\sec\theta$ (b) $\tan\theta.\operatorname{cosec}\theta$

(c) $\tan\theta+\sec\theta$ (d) $\operatorname{cosec}\theta.\sec\theta$

33. $\frac{(2\sin A)(1+\sin A)}{1+\sin A+\cos A}$ is equal to :

SSC CGL Tier-II (11 September 2019)

(a) $1+\sin A-\cos A$ (b) $1-\sin A\cos A$

(c) $1+\cos A-\sin A$ (d) $1+\sin A\cos A$

34. The value of $\tan^2\varphi+\cot^2\varphi-\sec^2\varphi.\operatorname{cosec}^2\varphi$ is equal to :

SSC CGL Tier-II (12 September 2019)

(a) -2 (b) 1

(c) 0 (d) -1

35. The value of

$$\frac{\sec^2\theta}{\operatorname{cosec}^2\theta}+\frac{\operatorname{cosec}^2\theta}{\sec^2\theta}-(\sec^2\theta+\operatorname{cosec}^2\theta)$$ is :

SSC CGL Tier-II (13 September 2019)

(a) 0 (b) -2

(c) 2 (d) 1

36. The value of

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

SSC CGL Tier-II (13 September 2019)

(a) -1 (b) -2

(c) 2 (d) 1

37. The expression $3\sec^2\theta.\tan^2\theta+\tan^6\theta-\sec^6\theta$ is equal to :

SSC CGL 4 March 2020 (Afternoon)

(a) -2 (b) 1

(c) 2 (d) -1

38. The value of

$$\frac{\sec^6\theta-\tan^6\theta-3\sec^2\theta\tan^2\theta+1}{\cos^4\theta-\sin^4\theta+2\sin^2\theta+2}$$ is :

SSC CGL 5 March 2020 (Morning)

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

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

39. The value of $4\left[\frac{(1-\sec A)^2+(1+\sec A)^2}{1+\sec^2 A}\right]$ is :

SSC CGL 6 March 2020 (Evening)

(a) 2 (b) 4

(c) 8 (d) 1

40. If x = cosecA + cosA and y = cosecA – cosA, then find the value of $\left(\frac{2}{x+y}\right)^2+\left(\frac{x-y}{2}\right)^2-1$.

SSC CHSL 19/10/2020 (Morning)

(a) 3 (b) 0

(c) 2 (d) 1

41. The value of $(\tan^2 A+\cot^2 A-2)-\sec^2 A\operatorname{cosec}^2 A$ is :

SSC CGL 2019, Tier-II (16/10/2020)

(a) -4 (b) -1

(c) 1 (d) 4

42. If $(\sin\theta+\operatorname{cosec}\theta)^2+(\cos\theta+\sec\theta)^2=k+\tan^2\theta+\cot^2\theta$, then the value of k is equal to :

SSC CGL 2019, Tier-II (18/10/2020)

(a) 7 (b) 2

(c) 9 (d) 5

Answer Key

1.(c)	2.(a)	3.(b)	4.(c)	5.(b)	6.(c)	7.(b)	8.(b)	9.(c)	10.(a)
11.(a)	12.(b)	13.(d)	14.(a)	15.(d)	16.(b)	17.(a)	18.(a)	19.(a)	20.(d)
21.(d)	22.(c)	23.(a)	24.(a)	25.(b)	26.(a)	27.(b)	28.(c)	29.(d)	30.(a)
31.(b)	32.(d)	33.(a)	34.(a)	35.(b)	36.(d)	37.(d)	38.(a)	39.(c)	40.(b)
41.(a)	42.(a)								