TRIGONOMETRY-03

VALUES OF TRIGONOMETRIC RATIO IN DIFFERENT QUADRANTS

BY ADITYA RANJAN

Maths By Aditya Ranjan

Rankers Gurukul

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MATHS EXPERT

TRIGONOMETRY (Practice Sheet – 3)

Basic Questions Based on Values of Trigonometric Ratio in Different Quadrants

1. If $\cos x = -\frac{3}{5}$, x lies in the third quadrant, find the values of other five trigonometric functions.

2. If $\cos x = -\frac{5}{12}$, x lies in the second quadrant, find the values of other five trigonometric functions.

3. The value of $\sin 960^\circ \cos 330^\circ + \cos 120^\circ \sin 150^\circ$ is :
   (a) – 1 (b) 1
   (c) $\frac{1}{\sqrt{2}}$ (d) $\frac{\sqrt{3}}{2}$

4. Find the value of $\sin\frac{31\pi}{3}$.
   (a) 1 (b) $\frac{1}{2}$
   (c) $\frac{\sqrt{3}}{2}$ (d) 0

5. Find the value of cos (– 1710°).
   (a) 0 (b) 1
   (c) – 1 (d) $\frac{1}{2}$

6. Solve $\tan\frac{13\pi}{12}$.
   (a) $2+\sqrt{3}$ (b) $2-\sqrt{3}$
   (c) $\sqrt{3}$ (d) $\sqrt{3}+1$

7. Find $3\sin\frac{\pi}{6}\sec^2\frac{\pi}{3} - 4\sin\frac{5\pi}{6}\cot\frac{\pi}{4}$?
   (a) 1 (b) 0
   (c) – 1 (d) 2

8. Find $\sin^2\frac{\pi}{3} + \cos^2\frac{\pi}{4}$ = ?
   (a) $\frac{1}{2}$ (b) $-\frac{1}{2}$
   (c) 1 (d) – 1

9. Find $2\sin^2\frac{3\pi}{4} + 2\cos^2\frac{\pi}{4} + 2\cos^2\frac{\pi}{3}$ = ?
   (a) 4 (b) 5
   (c) 10 (d) 6

10. Find $2\sin^2\frac{\pi}{6} + \text{cosec}^2\frac{7\pi}{6}\cos^2\frac{\pi}{3}$ = ?
    (a) 1 (b) $\frac{1}{2}$
    (c) $-\frac{1}{2}$ (d) $\frac{3}{2}$

11. Find $\cot^2\frac{\pi}{6} + \text{cosec}^2\frac{5\pi}{6} + 3\tan^2\frac{\pi}{6}$ = ?
    (a) 6 (b) 4
    (c) 5 (d) 3

12. Find $\frac{\cos(\pi+x)\cos(-x)}{\sin(\pi-x)\cos\left(\frac{\pi}{2}+x\right)}$ = ?
    (a) $\sin^2 x$ (b) $\tan^2 x$
    (c) $-\cot^2 x$ (d) $\cot^2 x$

13. $\sin 15^\circ + \cos 105^\circ$ =
    (a) 0 (b) $2\sin 15^\circ$
    (c) $\cos 15^\circ + \sin 15^\circ$ (d) $2\cos 15^\circ$

14. $\cos 25^\circ + \cos 5^\circ + \cos 175^\circ + \cos 205^\circ + \cos 300^\circ$ = ?
    (a) $\frac{1}{2}$ (b) $-\frac{1}{2}$
    (c) $\frac{\sqrt{3}}{2}$ (d) 1

15. $\dfrac{\cos\left(\frac{\pi}{2}-3A\right)-\cos\left(\frac{\pi}{2}+A\right)}{\cos A+\cos(\pi+3A)}$ = ?

(a) tan 2*A* (b) cot *A*
(c) tan 2*A* (d) cot 2*A*

16. If ABCD is a cyclic quadrilateral then cosA + cosB + cosC + cosD = ?
(a) 2(cosA + cosC) (b) 2(cosD + cosB)
(c) 2(sinA + sinC) (d) 0

17. $\tan\theta \sin\left(\frac{\pi}{2}+\theta\right)\cos\left(\frac{\pi}{2}-\theta\right)$ = ?

(a) 1 (b) 0
(c) cosθ (d) $\sin^2\theta$

18. tanA+ tan(180°+A) +cot(90°+A) + cot (360° – A) = ?
(a) 0
(b) 2 tanA
(c) 2 cotA
(d) tamA – cotA

19. $\cot\frac{\pi}{7}+\cot\frac{2\pi}{7}+\cot\frac{3\pi}{7}$ .....+ $\cot\frac{6\pi}{7}$ = ?
(a) 0 (b) 1
(c) – 1 (d) 2

20. $\sin^2\frac{\pi}{8}+\sin^2\frac{3\pi}{8}+\sin^2\frac{5\pi}{8}+\sin^2\frac{7\pi}{8}$ = ?

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

21. What is the value of $\frac{4}{3}\cot^2\frac{\pi}{6}+3\cos^2150°$ – 4cosec²45° + 8 $\sin\frac{\pi}{2}$?

(a) $\frac{25}{4}$ (b) 1
(c) $-\frac{7}{2}$ (d) $\frac{13}{2}$

22. What is the value of
$\dfrac{\left[\left\{4\cos(90-A)\sin^3(90+A)\right\}-\left\{4\sin(90+A)\cos^3(90-A)\right\}\right]}{\cos\left(\frac{180+8A}{2}\right)}$
(a) 1 (b) – 1
(c) 0 (d) 2

23. What is the value of
$\tan\left(\frac{\pi}{4}+A\right)\times\tan\left(\frac{3\pi}{4}+A\right)$?
(a) 0 (b) 1
(c) $\frac{\cot A}{2}$ (d) – 1

24. What is the value of sin (630° + A) + cosA?
(a) $\sqrt{\frac{3}{2}}$ (b) $\frac{1}{2}$
(c) 0 (d) $2\sqrt{3}$

25. What is the value of cos(90 – B) sin(C – A) + sin(90 + A)cos(B + C) – sin(90 – C) cos (A + B) ?
(a) 1 (b) sin(A + B – C)
(c) cos(B + C – A) (d) 0

26. If cos*x* = – $\frac{1}{2}$ and π < x < $\frac{3\pi}{2}$, then the value of $2\tan^2x - 3\operatorname{cosec}^2x$ is :
SSC CHSL 8 July 2019 (Morning)
(a) 2 (b) 10
(c) 8 (d) 4

27. If cos*x* = – $\frac{\sqrt{3}}{2}$ and π < x < $\frac{3\pi}{2}$, then the value of $2\cot^2x + 3\sec^2x$ is :
SSC CHSL 8 July 2019 (Afternoon)
(a) 10 (b) 4
(c) 8 (d) 16

28. Find *x* if cos*x* = – $\frac{1}{2}$.
SSC CHSL 15/10/2020 (Evening)
(a) $\frac{3\pi}{2}$ (b) $\frac{2\pi}{3}$
(c) $\frac{5\pi}{2}$ (d) $\frac{4\pi}{3}$

ANSWER KEY

1. (*)	**2.**(*)	**3.**(a)	**4.**(c)	**5.**(a)	**6.**(b)	**7.**(a)	**8.**(b)	**9.**(c)	**10.**(d)
11.(a)	**12.**(d)	**13.**(a)	**14.**(a)	**15.**(b)	**16.**(d)	**17.**(d)	**18.**(d)	**19.**(a)	**20.**(b)
21.(a)	**22.**(b)	**23.**(d)	**24.**(c)	**25.**(d)	**26.** (a)	**27.** (a)	**28.** (b)		