Trigonometry

Q. 1. If $\sin A = \frac{9}{41}$ and A lies in 2nd quadrant, then find the value of $\sin A \times \sec A$.

SSC CGL 22/09/2025 (Shift 1)

(a) $\frac{9}{40}$ (b) $-\frac{9}{40}$ (c) $\frac{41}{40}$ (d) $-\frac{41}{40}$

Q. 2. If $\tan A = \frac{x}{y}$ and $A \in (0, \frac{\pi}{2})$, then what is sinA in terms of x and y?

SSC CGL 22/09/2025 (Shift 1)

(a) $\frac{\sqrt{x^2 - y^2}}{x}$

(b) $\frac{y}{\sqrt{x^2 + y^2}}$

(c) $\frac{x}{\sqrt{x^2 + y^2}}$

(d) $\frac{\sqrt{x^2 + y^2}}{y}$

Q. 3. If $\sin A = \frac{3}{5}$, find the value of $(15\sin A + 20\cos A)^2 + (5\sin A + 10\cos A)^2$.

SSC CGL 22/09/2025 (Shift 2)

(a) 746 (b) 625 (c) 713 (d) 734

Q. 4. If $\sin\beta = \cos\beta$, then find $\sin^3\beta + \cos^3\beta$.

SSC CGL 22/09/2025 (Shift 2)

(a) $\frac{\sqrt{2}}{2}$ (b) $\frac{\sqrt{3}}{5}$ (c) $\frac{\sqrt{3}}{2}$ (d) $\frac{\sqrt{5}}{3}$

Q. 5. If $\tan 2\theta = \cot(3\theta + 10°)$, then what is the value of θ ?

SSC CGL 22/09/2025 (Shift 2)

(a) 30° (b) 25° (c) 16° (d) 18°

Q. 6. if $\sin\theta + \cos\theta = \frac{\sqrt{3}}{2}$, find the value of $\sin^2\theta + \cos^2\theta + 2\sin\theta\cos\theta$.

SSC CGL 22/09/2025 (Shift 3)

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

Q. 7. If $\sin C = \frac{1}{\sqrt{10}}$, then find cot C in simplest form.

SSC CGL 22/09/2025 (Shift 3)

(a) $\sqrt{10}$ (b) $\frac{1}{\sqrt{10}}$ (c) 3 (d) $\frac{3}{\sqrt{10}}$

Q. 8. If sinA = 0.8, what is the value of tanA ?

SSC CGL 23/09/2025 (Shift 1)

(a) 1.50 (b) 1.33 (c) 1.25 (d) 2.56

Q. 9. If cosecA + cot A = r, then what is cosecA in terms of r?

SSC CGL 23/09/2025 (Shift 1)

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

Q. 10. Which of the following is true for all acute angles A ?

SSC CGL 23/09/2025 (Shift 1)

(a) $\tan(90° - A) = \sin A$

(b) $\cos(90° - A) = \sin A$

(c) $\sin(90° - A) = \tan A$

(d) $\cot(90° - A) = \cos A$

Q. 11. If $\cos\theta = \frac{5}{13}$ and θ lies in 2nd quadrant, find the value of $(1 + \sin\theta)(1 - \sin\theta)$.

SSC CGL 23/09/2025 (Shift 2)

(a) $-\frac{19}{125}$ (b) $\frac{26}{163}$ (c) $\frac{21}{159}$ (d) $\frac{25}{169}$

Q. 12. If $\cos x = \sin(3x - 10°)$, then what is the value of x?

SSC CGL 23/09/2025 (Shift 2)

(a) 25° (b) 35° (c) 28° (d) 10°

Q. 13. If cosA = x, then what is the value of cotA in terms of x ?

SSC CGL 23/09/2025 (Shift 3)

(a) $\frac{x}{\sqrt{1-x^2}}$ (b) $\frac{\sqrt{1-x^2}}{x2}$ (c) $\frac{2}{x}$ (d) $2x^2$

Q. 14. If $\cos A = \frac{3}{5}$ and A lies in the 1st quadrant, what is the value of cot A ?

SSC CGL 23/09/2025 (Shift 3)

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

Q. 15. If $\tan x = \cot(2x - 10°)$, find the value of x.

SSC CGL 23/09/2025 (Shift 3)

(a) 50° (b) 25.52° (c) 40° (d) 33.33°

Q. 16. If $\sin A = \frac{35}{37}$ and A is acute, find cotA.

SSC CGL 24/09/2025 (Shift 1)

(a) $\frac{5}{37}$ (b) $\frac{12}{35}$ (c) $\frac{5}{12}$ (d) $\frac{37}{35}$

Q. 17. If $A + B = 90°$ and $\sin A = \frac{3}{5}$, determine the value of $\sin A \times \sin B$.

SSC CGL 24/09/2025 (Shift 1)

(a) $\frac{16}{25}$ (b) $\frac{25}{12}$ (c) $\frac{12}{25}$ (d) $\frac{4}{5}$

Q. 18. If $\cot A = \frac{4}{3}$, then what is the value of $\operatorname{cosec} A$?

SSC CGL 24/09/2025 (Shift 2)

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

Q. 19. If $1 + \cot^2\theta = \text{cosec}^2\theta$, then what is the value of $3\text{cosec}^2 30° - 3\cot^2 30°$?

SSC CGL 24/09/2025 (Shift 2)

(a) 5 (b) 1 (c) 3 (d) 6

Q. 20. If $\sec(90° - \theta) = y$ and θ is an acute angle, then what is the value of $\sin\theta$ in terms of y ?

SSC CGL 24/09/2025 (Shift 2)

(a) y (b) $\sqrt{1 - \frac{1}{y^2}}$ (c) $\frac{1}{y}$ (d) Undefined

Thank You