1. Find the value of (A) sin 300º (B) tan225º (C) sin15º. cos15º (D) sin (37°) cos (53°)

2. Find value of following T-ratio :

(i) cosec(–3030°) (ii) sin(1830°)

(iii) cos(–1710°) (iv) cos(–2010°)

(v) tan(2490°) (vi) $\cot\left(-\frac{15\pi}{4}\right)$

(vii) $\sin\left(\frac{31\pi}{3}\right)$ (viii) $\tan\left(\frac{19\pi}{3}\right)$

3. If $\sin\theta = \frac{1}{3}$, then cos θ will be -

(A) $\pm\frac{8}{9}$ (B) $\pm\frac{4}{3}$ (C) $\pm\frac{2\sqrt{2}}{3}$ (D) $\pm\frac{3}{4}$

4. If $\cos\theta = \frac{4}{5}$, find sin θ and cot θ.

5. If $\cos A = \frac{9}{41}$, find tan A and cosec A.

6. Prove that

(i) sin420° cos390° + cos(–300°) sin(–330°) = 1

(ii) tan225° cot405° + tan(765°) cot(675°) = 0

(iii)cos 570° sin 510° – sin 330° cos 390° = 0.

7. Find value of

(i) $\sin^2 15^0$ (ii) $\cos^2 15^0$

(iii) $\tan\frac{\pi}{10} + \tan\frac{3\pi}{10} + \tan\frac{7\pi}{10} + \tan\frac{9\pi}{10}$ (iv) $\sin\frac{3\pi}{5} + \sin\frac{4\pi}{5} + \sin\frac{6\pi}{5} + \sin\frac{7\pi}{5}$

(v) $\frac{\cos(360°-A)}{\sin(270°+A)} + \frac{\cot(90°+A)}{\tan(180°-A)} + \frac{\sin(90°-A)}{\sin(90°+A)}$

8. Find maximum and minimum values of expressions -

(i) sin θ – cos θ (ii) sin θ + $\sqrt{3}$ cos θ

(iii)5sinx + 12cosx + 10 (iv) $\frac{15+(3\cos\theta+4\sin\theta)}{15-(3\cos\theta+4\sin\theta)}$

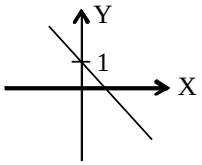
9. Find value of following T-ratio :

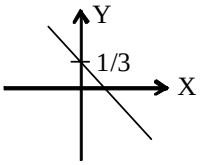
(i) sin (1°) (ii) cos(1.7°) (iii) sin(–2.4°) (iv) tan(2°)

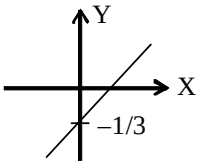
10. Find slope of a straight line

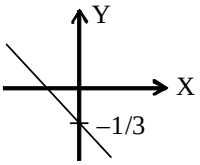
(i) $2x - 5y + 7 = 0$ (ii) $5x + 3y = 0$

11. Correct graph of $4x + 3y + 1 = 0$ is -

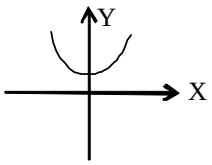
(A) 

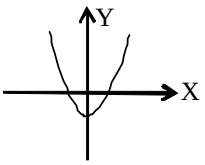
(B) 

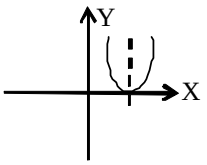
(C) 

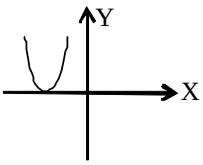
(D) 

12. Correct graph of $y - 1 = x^2$ is -

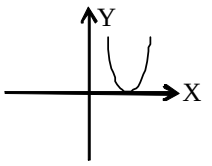
(A) 

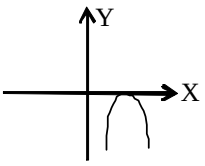
(B) 

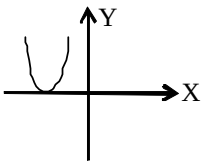
(C) 

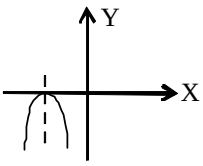
(D) 

13. Correct graph of $y = -(x + 2)^2$ is -

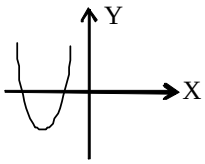
(A) 

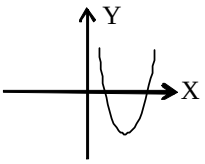
(B) 

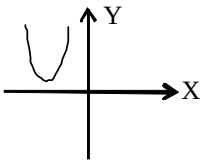
(C) 

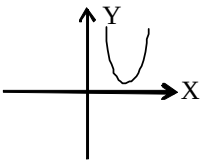
(D) 

14. Correct graph of $y = 2x^2 + 3x + 1$ is -

(A) 

(B) 

(C) 

(D) 

15. Plot the graph of

(i) $\sin 2x$ (ii) $1 + \sin x$ (iii) $1 + \cos x$ (iv) $1 - \cos x$

(v) $\sin^2 x$ (vi) $\cos^2 x$ (vii) $y = e^{-x}$ (viii) $y = -e^{-x}$

16. Plot the graph of

(i) $y = x^2 - 5x + 6$ (ii) $y = 8x - x^2$ (iii) $y = 4x - x^2 - 4$ (iv) $y = 2x - x^2 + 4$

Answers

RACE # 03

1. (A) $-\sqrt{3}/2$ (B) 1 (C) 1/4 (D) 9/25

2. (i) – 2 (ii) 1/2 (iii) 0 (iv) $-\sqrt{3}/2$ (v) $-1/\sqrt{3}$ (vi) 1 (vii) $\sqrt{3}/2$ (viii) $\sqrt{3}$

3. (C) **4.** $\sin\theta = \pm 3/5, \cot\theta = \pm 4/3$ **5.** tan A = $\pm 40/9$, cosec A = ± 41/40

7. (i) $\frac{2-\sqrt{3}}{4}$, (ii) $\frac{2+\sqrt{3}}{4}$, (iii) 0, (iv) 0, (v) + 1 **8.** (i) $\sqrt{2}, -\sqrt{2}$ (ii) 2, –2 (iii) 23, -3 (iv) 2, 1/2

9. (i) $\frac{\pi}{180}$ (ii) 1 (iii) $\frac{-\pi}{75}$ (iv) $\frac{\pi}{90}$ **10.** (i) $\frac{2}{5}$ (ii) $-\frac{5}{3}$ **11.** (D) **12.** (A) **13.** (D) **14.** (A)