

## ૨૪. ત્રિકોણમિતિ

### ● રીત - ૧

$$(1) \sin \theta = \frac{\text{સામેની બાજુ}}{\text{કર્ણ}} \quad (2) \cos \theta = \frac{\text{પાસેની બાજુ}}{\text{કર્ણ}}$$

$$(3) \tan \theta = \frac{\text{સામેની બાજુ}}{\text{પાસેની બાજુ}} \quad (4) \operatorname{cosec} \theta = \frac{\text{કર્ણ}}{\text{સામેની બાજુ}}$$

$$(5) \sec \theta = \frac{\text{કર્ણ}}{\text{પાસેની બાજુ}} \quad (6) \cot \theta = \frac{\text{પાસેની બાજુ}}{\text{સામેની બાજુ}}$$

### ● રીત - ૨

$$(1) \sin \theta = \frac{1}{\operatorname{cosec} \theta}, \operatorname{cosec} \theta = \frac{1}{\sin \theta}, \sin \theta \cdot \operatorname{cosec} \theta = 1$$

$$(2) \cos \theta = \frac{1}{\sec \theta}, \sec \theta = \frac{1}{\cos \theta}, \cos \theta \cdot \sec \theta = 1$$

$$(3) \tan \theta = \frac{\sin \theta}{\cos \theta}, \cot \theta = \frac{\cos \theta}{\sin \theta}, \tan \theta \cdot \cot \theta = 1$$

### ● રીત - ૩

$$(1) \sin^2 \theta + \cos^2 \theta = 1, \sin^2 \theta = 1 - \cos^2 \theta, \cos^2 \theta = 1 - \sin^2 \theta$$

$$(2) \sec^2 \theta - \tan^2 \theta = 1, \sec^2 \theta = 1 + \tan^2 \theta, \tan^2 \theta = \sec^2 \theta - 1$$

$$(3) \operatorname{cosec}^2 \theta - \cot^2 \theta = 1, \operatorname{cosec}^2 \theta = 1 + \cot^2 \theta, \cot^2 \theta = \operatorname{cosec}^2 \theta - 1$$

### ● રીત - ૪

$$(1) \sin (90 - \theta) = \cos \theta \text{ તથા } \cos (90 - \theta) = \sin \theta$$

$$(2) \tan (90 - \theta) = \cot \theta \text{ તથા } \cot (90 - \theta) = \tan \theta$$

$$(3) \operatorname{cosec} (90 - \theta) = \sec \theta \text{ તથા } \sec (90 - \theta) = \operatorname{cosec} \theta$$

### ● રીત - ૫

વિવિધ વિધેયોના વિવિધ ખૂણાઓના માપ

	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$
sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
cosec	*	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
sec	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	*
tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	*
cot	*	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0

### ● પ્રેક્ટીસના દાખલા ●

1.  $\triangle ABC$  માં  $\angle C = 90^\circ$  અને  $\tan A = \frac{1}{\sqrt{3}}$ , તો

$\sin A = \dots\dots\dots$

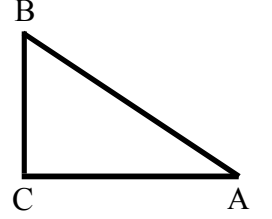
(A)  $\frac{1}{2}$  (B)  $\frac{\sqrt{3}}{2}$  (C)  $\frac{1}{\sqrt{2}}$  (D) 0

અહીં  $\tan A = \frac{1}{\sqrt{3}}$  આપેલ છે.

$\therefore A = 30^\circ$  થાય.

હવે  $\sin A = \sin 30^\circ = \frac{1}{2}$

$\therefore$  જવાબ (A)  $\frac{1}{2}$



2.  $5 \cos A = 4 \sin A$ , તો  $\tan A = \dots\dots\dots$

(A)  $\frac{1}{2}$  (B)  $\frac{5}{4}$  (C) 5 (D)  $\frac{4}{5}$

અહીં  $5 \cos A = 4 \sin A$  આપેલ છે.

$\therefore \frac{\sin A}{\cos A} = \frac{5}{4}$  પણ  $\therefore \frac{\sin A}{\cos A} = \tan A$  થાય.

$\therefore \tan A = \frac{5}{4}$

$\therefore$  જવાબ (B)  $\frac{5}{4}$

3.  $\tan \theta = \frac{4}{3}$ , તો  $\frac{5 \sin \theta + 2 \cos \theta}{3 \sin \theta - \cos \theta} = \dots\dots\dots$

(A)  $\frac{22}{13}$  (B) 2 (C)  $\frac{26}{9}$  (D)  $\frac{7}{2}$

અહીં  $\frac{5 \sin \theta + 2 \cos \theta}{3 \sin \theta - \cos \theta} = \frac{5 \frac{\sin \theta}{\cos \theta} + 2 \frac{\cos \theta}{\cos \theta}}{\frac{3 \sin \theta}{\cos \theta} - \frac{\cos \theta}{\cos \theta}}$

$= \frac{5 \tan \theta + 2}{3 \tan \theta - 1}$

$= \frac{5(\frac{4}{3}) + 2}{3(\frac{4}{3}) - 1}$

$= \frac{\frac{20 + 6}{3}}{\frac{12 - 3}{3}} = \frac{26}{9}$

$$\therefore \text{જવાબ (C)} \frac{26}{9}$$

4. જો  $3\cot\theta = 4$ , તો  $\frac{1 - \tan^2\theta}{1 + \tan^2\theta} = \dots\dots\dots$

(A)  $\frac{7}{25}$  (B)  $\frac{4}{3}$  (C)  $\frac{3}{4}$  (D)  $\frac{1}{7}$

અહીં  $3\cot\theta = 4$  આપેલ છે.

$$\therefore \frac{1}{\cot\theta} = \frac{3}{4} \text{ થાય.}$$

$$\therefore \tan\theta = \frac{3}{4}$$

$$\text{હવે } \frac{1 - \tan^2\theta}{1 + \tan^2\theta} = \frac{1 - \left(\frac{3}{4}\right)^2}{1 + \left(\frac{3}{4}\right)^2} = \frac{1 - \frac{9}{16}}{1 + \frac{9}{16}} = \frac{16-9}{16+9}$$

$$= \frac{7}{25}$$

$$\therefore \text{જવાબ (A)} \frac{7}{25}$$

5.  $\operatorname{cosec}\theta = \frac{2}{\sqrt{3}}$ , તો  $\theta = \dots\dots\dots$

(A) 30 (B) 45 (C) 60 (D) 90

અહીં  $\operatorname{cosec}\theta = \frac{2}{\sqrt{3}} \therefore \sin\theta = \frac{\sqrt{3}}{2}$

પણ  $\sin 60 = \frac{\sqrt{3}}{2} \therefore \theta = 60$

$$\therefore \text{જવાબ (C)} \theta = 60$$

6.  $\sin 60 \sin 45 + \cos 60 \cos 45 = \dots\dots\dots$

(A)  $\sqrt{3} + 1$  (B)  $\frac{\sqrt{3} + 1}{2}$

(C)  $\frac{\sqrt{6} + \sqrt{2}}{4}$  (D)  $\frac{1}{2}$

અહીં  $\sin 60 \sin 45 + \cos 60 \cos 45 = \frac{\sqrt{3}}{2} \cdot \frac{1}{\sqrt{2}} + \frac{1}{2} \cdot \frac{1}{\sqrt{2}}$

$$= \frac{\sqrt{3}}{2\sqrt{2}} + \frac{1}{2\sqrt{2}}$$

$$= \frac{\sqrt{3} + 1}{2\sqrt{2}} = \frac{\sqrt{6} + \sqrt{2}}{4}$$

$$\therefore \text{જવાબ (C)} \frac{\sqrt{6} + \sqrt{2}}{4}$$

7.  $\frac{\sin 60 + \cos 30}{1 + \sin 30 + \cos 60} = \dots\dots\dots$

(A)  $\frac{1}{\sqrt{2}}$  (B)  $\frac{1}{2}$  (C) 1 (D)  $\frac{\sqrt{3}}{2}$

$$= \frac{\sin 60 + \cos 30}{1 + \sin 30 + \cos 60}$$

$$= \frac{\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2}}{1 + \frac{1}{2} + \frac{1}{2}} = \frac{\frac{2\sqrt{3}}{2}}{\frac{4}{2}}$$

$$= \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2}$$

$$\therefore \text{જવાબ (D)} \frac{\sqrt{3}}{2}$$

8.  $\sin x = \sin 60 \cdot \cos 30 - \cos 60 \cdot \sin 30$  તો  $x = \dots\dots\dots$

(A) 0 (B) 30 (C) 45 (D) 60

$$\sin x = \sin 60 \cdot \cos 30 - \cos 60 \cdot \sin 30$$

$$= \frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} - \frac{1}{2} \cdot \frac{1}{2}$$

$$= \frac{3}{4} - \frac{1}{4} = \frac{3-1}{4} = \frac{2}{4} = \frac{1}{2}$$

$$\therefore \sin x = \frac{1}{2} \text{ પરંતુ } \sin 30 = \frac{1}{2} \therefore x = 30$$

$$\therefore \text{જવાબ } x = 30$$

9.  $\sin 70 = \cos \theta$ , તો  $\theta = \dots\dots\dots$

(A) 70 (B) 90 (C) 20 (D) 30

$$\sin 70 = \sin (90 - 20) = \cos 20$$

પણ  $\sin 70 = \cos \theta$  આપેલ છે.

$$\therefore \cos \theta = \cos 20 \therefore \theta = 20$$

$$\therefore \text{જવાબ (C)} 20$$

10.  $\frac{\cos 50}{\sin 40} + \frac{\sin 15}{\cos 75} = \dots\dots\dots$

(A) 0 (B) 1 (C) 2 (D) 3

અહીં  $\frac{\cos 50}{\sin 40} + \frac{\sin 15}{\cos 75}$  આપેલ છે

$$\therefore \frac{\cos(90 - 40)}{\sin 40} + \frac{\sin(90 - 75)}{\cos 75}$$

$$= \frac{\sin 40}{\sin 40} + \frac{\cos 75}{\cos 75} = 1 + 1 = 2$$

$$\therefore \text{જવાબ (C)} 2$$

11. જો  $\sec 4A = \operatorname{cosec} (A - 20)$ , જ્યાં  $4A$  એ લઘુકોણનું માપ છે, તો  $A$  ની કિંમત  $\dots\dots\dots$  છે.

(A) 45 (B) 70 (C) 30 (D) 22

$\sec 4A = \operatorname{cosec} (A-20)$  અર્થે લે છે.

$$\therefore \operatorname{cosec} (90 - 4A) = \operatorname{cosec} (A-20)$$

$$\therefore 90 - 4A = A-20$$

$$\therefore 5A = 110$$

$$\therefore A = 22$$

$$\therefore \text{જવાબ (D) 22}$$

$$12. \frac{\cos^2 40 + \cos^2 50}{\sin^2 40 + \sin^2 50} = \dots\dots\dots$$

(A) 2 (B) 4 (C) 1 (D) 0

$$\text{અહીં } \frac{\cos^2 40 + \cos^2 50}{\sin^2 40 + \sin^2 50} = \frac{\cos^2 40 + \cos^2 (90-40)}{\sin^2 40 + \sin^2 (90-40)}$$

$$= \frac{\cos^2 40 + \sin^2 40}{\sin^2 40 + \cos^2 40}$$

$$\therefore \text{જવાબ (C) 1}$$

$$13. \sin 48 \cdot \sec 42 + \cos 48 \operatorname{cosec} 42 = \dots\dots\dots$$

(A) 2 (B) 1 (C)  $\frac{3}{4}$  (D) 0

$$\sin 48 \sec 42 + \cos 48 \operatorname{cosec} 42$$

$$= \sin (90-42) \sec 42 + \cos (90-42) \cdot \operatorname{cosec} 42$$

$$= \cos 42 \cdot \sec 42 + \sin 42 \cdot \operatorname{cosec} 42$$

$$= 1 + 1 = 2$$

$$\therefore \text{જવાબ (A) 2}$$

$$14. \frac{\cos (90 - A) \sin (90 - A)}{\tan (90-A)} \text{ જુ' સાદુરૂપ } \dots\dots\dots \text{ છે.}$$

(A)  $\sin^2 A$  (B)  $\cos^2 A$  (C)  $\sin A$  (D) 1

$$= \frac{\cos (90 - A) \cdot \sin (90 - A)}{\tan (90-A)}$$

$$= \frac{\sin A \cdot \cos A}{\cot A}$$

$$= \frac{\sin A \cdot \cos A}{\frac{\cos A}{\sin A}} = \sin^2 A$$

$$\therefore \text{જવાબ } \sin^2 A$$

$$15. \text{ જો } \sin \theta = \cos 30 \text{ હોય, તો } 2 \tan^2 \theta - 1 = \dots\dots\dots$$

(A) 5 (B) 4 (C) 3 (D) 0

$$\text{અહીં } \sin \theta = \cos 30 \therefore \sin \theta = \frac{\sqrt{3}}{2} \therefore \theta = 60$$

$$\therefore 2 \tan^2 \theta - 1 = 2 \tan^2 60 - 1$$

$$= 2 \left( \sqrt{3} \right)^2 - 1 = 2 \times 3 - 1 = 6 - 1 = 5$$

$$\therefore \text{જવાબ (A) 5}$$

$$16. 0 < \theta < 90 \text{ અર્થે } \sec \theta = \operatorname{cosec} 60 \text{ હોય તો } 2 \cos^2 \theta - 1 \text{ ની કિંમત } \dots\dots\dots \text{ છે.}$$

(A) 3 (B) 1 (C)  $\frac{3}{4}$  (D)  $\frac{1}{2}$

$$\sec \theta = \operatorname{cosec} 60 \therefore \sec \theta = \operatorname{cosec} (90-30)$$

$$\therefore \sec \theta = \sec 30$$

$$\therefore \theta = 30$$

$$\text{હવે, } 2 \cos^2 \theta - 1 = 2 \cos^2 30 - 1 = 2 \left( \frac{\sqrt{3}}{2} \right)^2 - 1$$

$$= \frac{2 \times 3}{4} - 1 = \frac{3}{2} - 1 = \frac{1}{2}$$

$$\therefore \text{જવાબ (D) } \frac{1}{2}$$

$$17. \operatorname{cosec} \theta = \sqrt{2}, \text{ તો } \tan \theta \text{ જુ' મૂલ્ય } \dots\dots\dots \text{ છે.}$$

(A)  $\sqrt{3}$  (B) 1 (C)  $\frac{1}{\sqrt{2}}$  (D)  $\frac{1}{\sqrt{3}}$

$$\operatorname{cosec} \theta = \sqrt{2} \therefore \sin \theta = \frac{1}{\sqrt{2}} \therefore \theta = 45$$

$$\therefore \tan \theta = \tan 45 = 1$$

$$\therefore \text{જવાબ (B) 1}$$

$$18. \text{ જો } \cot \theta = \frac{4}{3}, \text{ તો } \frac{\cos \theta - \sin \theta}{\cos \theta + \sin \theta} \text{ ની કિંમત } \dots\dots\dots \text{ છે.}$$

(A) 7 (B)  $\frac{1}{7}$  (C)  $\frac{4}{3}$  (D)  $-\frac{4}{3}$

$$\text{અહીં } \frac{\cos \theta - \sin \theta}{\cos \theta + \sin \theta} = \frac{\cot \theta - 1}{\cot \theta + 1} = \frac{\frac{4}{3} - 1}{\frac{4}{3} + 1}$$

$$= \frac{\frac{1}{3}}{\frac{7}{3}} = \frac{1}{7}$$

$$\therefore \text{જવાબ (B) } \frac{1}{7}$$

$$19. \text{ જો } \cos^2 45 - \cos^2 30 = x \cos 45 \sin 45, \text{ તો } x = \dots\dots\dots$$

(A) 2 (B)  $\frac{3}{2}$  (C)  $-\frac{1}{2}$  (D)  $\frac{3}{4}$

$$\text{અહીં } \cos^2 45 - \cos^2 30 = x \cos 45 \sin 45 \text{ આપેલ છે.}$$

$$\therefore \left( \frac{1}{\sqrt{2}} \right)^2 - \left( \frac{\sqrt{3}}{2} \right)^2 = x \frac{1}{\sqrt{2}} \cdot \frac{1}{\sqrt{2}}$$

$$\therefore \frac{1}{2} - \frac{3}{4} = x \frac{1}{2}$$

$$\therefore \frac{x}{2} = -\frac{1}{4} \therefore x = -\frac{1}{2}$$

$$\therefore \text{જવાબ (C) } \frac{-1}{2}$$

20.  $\tan 20 \cdot \tan 25 \cdot \tan 45 \cdot \tan 65 \cdot \tan 70 = \dots\dots\dots$

(A) -1 (B) 2 (C) 0 (D) 1

અહીં  $\tan 20 \cdot \tan 25 \cdot \tan 45 \cdot \tan 65 \cdot \tan 70$

$$= \tan 20 \cdot \tan 25 \times 1 \times \cot (90 - 65) \cdot \cot (90 - 70)$$

$$= \tan 20 \cdot \tan 25 \cdot \cot 25 \cdot \cot 20$$

$$= 1 \times 1 = 1$$

$$\therefore \text{જવાબ (D) } 1$$

21.  $\frac{1}{\cos^2 \theta} - \frac{1}{\cot^2 \theta} = \dots\dots\dots$

(A) 1 (B) 0 (C) 2 (D)  $\cos^2 \theta$

$$\frac{1}{\cos^2 \theta} - \frac{1}{\cot^2 \theta} = \sec^2 \theta - \tan^2 \theta = 1$$

$$\therefore \text{જવાબ (A) } 1$$

22.  $(1 + \tan^2 \theta) (1 - \cos^2 \theta) = \dots\dots\dots$

(A)  $\cot^2 \theta$  (B)  $\tan^2 \theta$  (C) 1 (D) 0

$$(1 + \tan^2 \theta) (1 - \cos^2 \theta) = \sec^2 \theta \cdot \sin^2 \theta$$

$$= \frac{\sin^2 \theta}{\cos^2 \theta} = \tan^2 \theta$$

$$\therefore \text{જવાબ (B) } \tan^2 \theta$$

23.  $(\sin \theta + \cos \theta)^2 + (\sin \theta - \cos \theta)^2 = \dots\dots\dots$

(A)  $4 \sin \theta \cos \theta$  (B) 2

(C) 1 (D) 0

અહીં,  $(\sin \theta + \cos \theta)^2 + (\sin \theta - \cos \theta)^2$

$$= \sin^2 \theta + 2 \sin \theta \cos \theta + \cos^2 \theta + \sin^2 \theta - 2 \sin \theta \cos \theta + \cos^2 \theta$$

$$= 2 (\sin^2 \theta + \cos^2 \theta) = 2 (1) = 2$$

$$\therefore \text{જવાબ (B) } 2$$

24.  $8 \sin^2 45 - 2 \tan^2 60 + 3 \tan^2 60 - 2 \cos^2 45 = \dots\dots\dots$

(A) 5.5 (B) 6 (C) 4 (D) 5

અહીં,  $8 \sin^2 45 - 2 \tan^2 60 + 3 \tan^2 60 - 2 \cos^2 45$

$$= 8 \left( \frac{1}{\sqrt{2}} \right)^2 - 2 (\sqrt{3})^2 + 3 (\sqrt{3})^2 - 2 \left( \frac{1}{\sqrt{2}} \right)^2$$

$$= \frac{8}{2} - 6 + 9 - \frac{2}{2} = 4 - 6 + 9 - 1 = 6$$

$$\therefore \text{જવાબ (B) } 6$$

25.  $\sec^2 \theta + \tan^2 \theta = \frac{13}{12}$  હોય તો  $\sec^4 \theta - \tan^4 \theta$  નું મૂલ્ય ..... છે.

(A)  $\frac{12}{13}$  (B)  $\frac{13}{12}$  (C) 1 (D)  $\frac{1}{12}$

અહીં,  $\sec^4 \theta - \tan^4 \theta = (\sec^2 \theta + \tan^2 \theta) (\sec^2 \theta - \tan^2 \theta)$

$$= \frac{13}{12} \times 1 = \frac{13}{12}$$

$$\therefore \text{જવાબ (B) } \frac{13}{12}$$

26. જો  $\tan 7\theta \times \tan 3\theta = 1$  હોય તો  $\theta$  નું મૂલ્ય ..... છે.

(A) 18 (B) 0 (C) 9 (D) 10

અહીં,  $\tan 7\theta = \frac{1}{\tan 3\theta}$  થાય.

$$\therefore \tan 7\theta = \cot 3\theta = \tan (90 - 3\theta)$$

$$\therefore 7\theta = 90 - 3\theta$$

$$\therefore 10\theta = 90$$

$$\therefore \theta = 9$$

$$\therefore \text{જવાબ (C) } 9$$

27.  $\tan 5 \cdot \tan 25 \cdot \tan 45 \cdot \tan 65 \cdot \tan 85$  ની કિંમત ..... છે.

(A) 3 (B) 2 (C) 1 (D) 0

$$= \tan 5 \cdot \tan 25 \cdot \tan 45 \cdot \tan 65 \cdot \tan 85$$

$$= \tan 5 \cdot \tan 25 \times 1 \times \cot (90 - 65) \cdot \cot (90 - 85)$$

$$= \tan 5 \cdot \tan 25 \cdot \cot 25 \cdot \cot 5$$

$$= 1 \times 1 = 1$$

$$\therefore \text{જવાબ (C) } 1$$

28.  $\sin^2 15 + \sin^2 75 = \dots\dots\dots$

(A) 1 (B) 0 (C) 2 (D) 6

$$\sin^2 15 + \sin^2 75 = \sin^2 15 + \sin^2 (90 - 15)$$

$$= \sin^2 15 + \cos^2 15 = 1$$

$$\therefore \text{જવાબ (A) } 1$$

29.  $7 \cos^2 \theta + 3 \sin^2 \theta = 4$  તો  $\cot \theta = \dots\dots\dots$

(A)  $\frac{3}{7}$  (B)  $\frac{7}{3}$  (C)  $\sqrt{3}$  (D)  $\frac{1}{\sqrt{3}}$

$$7 \cos^2 \theta + 3 \sin^2 \theta = 4$$

$$\therefore 7 \cos^2 \theta + 3 \sin^2 \theta = 4 (\cos^2 \theta + \sin^2 \theta)$$

$$\therefore 7 \cos^2 \theta + 3 \sin^2 \theta = 4 \cos^2 \theta + 4 \sin^2 \theta$$

$$\therefore \sin^2 \theta = 3 \cos^2 \theta$$

$$\therefore \tan^2\theta = 3 \therefore \tan\theta = \sqrt{3} \therefore \cot\theta = \frac{1}{\sqrt{3}}$$

$$\therefore \text{જવાબ (D)} \frac{1}{\sqrt{3}}$$

● વધુ પ્રેક્ટીસીસ દાખલ

1.  $\cot\theta = \frac{4}{3}$  તો  $\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} = \dots\dots\dots$

2.  $\tan A = \frac{5}{12}$  તો  $(\sin A + \cos A) \cdot \sec A$  નું મૂલ્ય  
..... થાય.

3.  $\cos\theta = \frac{12}{13}$  તો  $\operatorname{cosec}\theta + \tan\theta = \dots\dots\dots$

4.  $\sec\theta = \sqrt{5}$  તો  $\tan\theta - \sqrt{5} \sin\theta = \dots\dots\dots$

5.  $\cos^2 45^\circ - \cos^2 30^\circ = x \cos 45^\circ \cdot \sin 45^\circ$  તો  $x = \dots\dots\dots$

6.  $\sin^2 60^\circ - \tan 45^\circ + \cos^2 30^\circ - \cot 90^\circ = \dots\dots\dots$

7.  $x \tan 30^\circ + x \cot 30^\circ = 1$  તો  $x = \dots\dots\dots$

8.  $\cos\theta = \sin 30^\circ$  તો  $\theta$  નું મૂલ્ય શું થાય ?

9.  $\frac{\cos(90^\circ - \theta)}{\sin\theta} + \frac{\sin\theta}{\cos(90^\circ - \theta)} = \dots\dots\dots$

10.  $\tan(90^\circ - \theta) \times \cos(90^\circ - \theta) = \dots\dots\dots$

11.  $\sec^2 15^\circ - \frac{1}{\tan^2 75^\circ} = \dots\dots\dots$

12.  $\tan 11^\circ \times \tan 79^\circ - \sin^2\theta = \cos^2\theta + K$  તો  $K = \dots\dots$

13.  $(\sin 80^\circ + \cos 10^\circ)(\sin 80^\circ - \cos 10^\circ) = \dots\dots\dots$

14.  $(1 + \sin\theta)(1 - \sin\theta) = \dots\dots\dots$

15.  $(1 - \cos^2\theta)(1 + \tan^2\theta) = \dots\dots\dots$

16.  $(1 + \tan^2\theta)(1 - \sin^2\theta)(\sec^2\theta - \tan^2\theta) = \dots\dots\dots$

17.  $\sec\theta \cdot \tan\theta \cdot \operatorname{cosec}\theta - \tan^2\theta = \dots\dots\dots$

18.  $\sin\theta \cdot \tan\theta + \cos\theta = \dots\dots\dots$

19.  $\tan^2\theta = \tan^2\theta + \cos^2\theta$  તો  $\theta = \dots\dots\dots$

20.  $5\cos A = 4\sin A$  તો  $\tan A = \dots\dots\dots$

21.  $\frac{\operatorname{cosec}^4\theta - \cot^4\theta}{\operatorname{cosec}^2\theta + \cot^2\theta} = \dots\dots\dots$

22.  $\frac{\sin^4\theta - \cos^4\theta}{\sin^2\theta - \cos^2\theta} = \dots\dots\dots$

23.  $7\cos^2\theta + 3\sin^2\theta = 4$  તો  $\cot\theta = \dots\dots\dots$