Introduction to TRIGONOMETRY

1] If $2 \cos \theta = 1$ and θ is an Acute angle then the value of 'θ' is :

A] 0^0 B] 30^0 C] 45^0 D] 60^0

2] The value of $\tan^2 60^0$ is :

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

3] $(1 + \tan^2 60^0)^2$ is equal to:

A] 1 B] 2 C] 16 D] 4

4] If $1 - \cos^2\theta = \frac{3}{4}$, then $\sin \theta$ is :

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

5] The value of $\tan \theta \cot \theta$ is:

A] 0 B] 1 C] $\frac{1}{\cot\theta}$ D] $\frac{1}{\tan \theta}$

6] If $\tan x = \frac{7}{24}$, then $\cot x$ is:

A] 7 B] 24 C] $\frac{7}{24}$ D] $\frac{24}{7}$

7] If $\sec (\theta + 36^0) = \operatorname{cosec}\theta$, then θ is equal to :

A] 36^0 B] 54^0 C] 63^0 D] 27^0

8] If $3x = \sec\theta$, $\frac{3}{x} = \tan \theta$, then $(x^2 - \frac{1}{x^2})$ is equal to:

A] 9 B] 3 C] $\frac{1}{9}$ D] 1

9] The value of $\sin^2 60^0 - \sin^2 30^0$ is:

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

10] If $\sec 2A = \operatorname{cosec} (A - 27^0)$, where 2A is an acute angle, then the measure of $\angle A$ is:

A] 35^0 B] 37^0 C] 39^0 D] 21^0

11] Given that $\sin\theta = \frac{a}{b}$, then $\tan \theta$ is equal to:

A] $\frac{b}{\sqrt{a^2 + b^2}}$ B] $\frac{b}{\sqrt{a^2 - b^2}}$ C] $\frac{a}{\sqrt{a^2 - b^2}}$ D] $\frac{a}{\sqrt{b^2 - a^2}}$

Radhika Polina

12] If $\sin \theta = \cos \theta$, then the value of $2\tan \theta + \cos^2\theta$ is:

A] 1   B] $\frac{1}{2}$ C] $\frac{5}{2}$ D] $\frac{2}{5}$

13] If $\operatorname{cosec} \theta = 2$ and $\cot \theta = \sqrt{3}p$, where 'θ' is an acute angle, then the value of 'p' is:

A] 2   B] 1   C] 0   D] $\sqrt{3}$

14] The maximum value of $\sin \theta$ is :

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

15] If $\tan \theta = \frac{7}{8}$, then the value of $\frac{(1+\sin \theta)\,(1-\sin \theta\,)}{(\,1+\cos \theta)\,(1-\cos \theta)}$ is :

A] $\frac{7}{8}$ B] $\frac{8}{7}$ C] $\frac{64}{49}$ D] $\frac{49}{64}$

16] If $5 \tan \theta = 4$, then the value of $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 3\cos\theta}$ is :

A] 0   B] 1   C] $\frac{1}{7}$ D] $\frac{2}{7}$

17] If $5 \tan \theta = 12$, then $\frac{13 \sin \theta}{3}$ is:

A] 2   B] 4   C] 12   D] 1

18] The value of $\frac{2 \tan 30^0}{1+\tan^2 30^0}$ is :

A] $\sin 60^0$ B] $\cos 60^0$ C] $\tan 60^0$ D] $\sin 30^0$

19] If A, B and C are interior angles of a ΔABC, then $\tan\left(\frac{A+B}{2}\right)$ is equal to:

A] $\sin\left(\frac{C}{2}\right)$ B] $\cos\left(\frac{C}{2}\right)$ C] $\cot\left(\frac{C}{2}\right)$ D] $\tan\left(\frac{C}{2}\right)$

20] If $\sin (x\text{-}20)^0 = \cos (3x - 10)^0$, then x is:

A] 60   B] 30   C] 46   D] 35.5

21] In a right triangle ABC right angled at C, if $\tan A = \frac{8}{15}$, then the value of $\operatorname{cosec}^2 A - 1$ is:

A] $\frac{64}{225}$ B] $\frac{225}{64}$ C] $\frac{289}{64}$ D] 0

22] If $\tan x = \sin 45^0 \cos 45^0 + \sin 30^0$, then x is equal to"

A] 45^0 B] 90^0 C] 0^0 D] $\frac{1}{2}$

Radhika Polina

23] Maximum value of $\frac{1}{\sec\theta}$, $0^0 \leq \theta \leq 90^0$ is:

    A] 1   B] 2   C] $\frac{1}{2}$ D] $\frac{1}{\sqrt{2}}$

24] If ABC is a right angled triangle, right angled at B. If AC = 17cm and BC = 8cm, then 15sec A + 8 cot A is:

    A] 23   B] 32   C] 120   D] 27

25] If $\sin^2 A = \frac{1}{2} \tan^2 45^0$, where 'A' is an acute angle, then the value of A is

    A] 60^0 B] 45^0 C] 30^0 D] 15^0

26] The value of $\cos^2 17^0 - \sin^2 73^0$ is

    A] 1   B] $\frac{1}{3}$ C] 0   D] -1

27] If A = 30^0, then sin 2A equals:

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

28] The value of $\sin 45^0 + \cos 45^0$ is:

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

29] $(1 + \cos\theta)(1 - \cos\theta)$ is equal to:

    A] $\sin^2\theta$ B] $\tan^2\theta$ C] 1   D] 0

30] Find sin A. cos A. tan A + cos A. sin A. cot A is equal to:

    A] $\sin^2 A - \cos^2 A$ B] $\tan^2 A + \cot^2 A$ C] $\sin^2 A + \cos^2 A$ D] $\sin^2 A + \tan^2 A$

31] $\sin^2 A = 2\sin A$ is true, then A is equal to:

    A] 60^0 B] 45^0 C] 30^0 D] 0^0

32] If $\tan 3A = \cot(A - 26^0)$, $3A < 90^0$, then the value of A is:

    A] 26^0 B] 29^0 C] 16^0 D] 58^0

33] If $\cos 2\theta = \sin 4\theta$, where 2θ and 4θ are acute angles, then the value of θ is:

    A] 15^0 B] 30^0 C] 45^0 D] 60^0

34] tan θ is not define, when θ is equal to:

        A] 0^0 B] 30^0 C] 60^0 D] 90^0

35] The value of $\cos 48^0 \cos 42^0 - \sin 48^0 \sin 42^0$ is :

        A] 1   B] 0   C] 90   D] 4

36] In Δ ABC right angled at C, the value of $\cos(A + B)$ is:

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

37] $\sin (45^0 + \theta) - \cos (45^0 - \theta)$ is equal to

        A] $2 \cos \theta$ B] 1   C] $2 \sin \theta$ D] 0

38] The value of $\cot 2\theta - \frac{1}{sin^2 \theta}$ is:

        A] 0   B] -1   C] 1   D] $\frac{1}{2}$

39] if $\sec \theta + \tan \theta + 1 = 0$, then $\sec \theta - \tan \theta$ is:

        A] -1   B] 1   C] 0   D] 2

40] If $x = a \cos \theta$, $y = b \sin \theta$, then $b^2x^2 + a^2y^2 - a^2b^2$ is equal to

        A] 1   B] -1   C] 0   D] 2ab

41] If $\csc \theta - \cot \theta = \frac{1}{4}$, then the value of $\csc \theta + \cot \theta$ is:

        A] 4   B] $\frac{1}{4}$ C] 1   D] -1

42] The value of $\left(\frac{11}{cot^2 \theta} - \frac{11}{cos^2 \theta} \right)$ is:

        A] 11   B] 0   C] $\frac{1}{11}$ D] -11

43] It $\tan \theta + \cot \theta = 5$, then the value of $\tan^2 \theta + \cot^2 \theta$ is:

        A] 23   B] 25   C] 27   D] 15

44] $\cos^2 \theta + \sin^2 \theta$ is:

        A] x   B] 1   C] $\frac{1}{2}$ D] x^2

45] $\frac{1-sec^2 A}{cosec^2 A - 1}$ equals:

        A] $- \sec^2 A$ B] $\tan^4 A$ C] $-\tan^4 A$ D] 1

Radhika Polina

46] $\dfrac{\sin\theta}{1+\cos\theta}$ is :

    A] $\dfrac{\cos\theta}{1-\sin\theta}$ B] $\dfrac{1-\cos\theta}{\sin\theta}$ C] $\dfrac{1-\sin\theta}{\cos\theta}$ D] $\dfrac{1-\cos\theta}{1+\cos\theta}$

47] (sec A + tan A) (1 – sin A) on simplification gives :

    A] $\tan^2 A$ B] $\sec^2 A$ C] cos A   D] sin A

48] $9\sec^2 A - 9\tan^2 A =$

    A] 1   B] 9   C] 8   D] 0

49] (1 + tan θ + sec θ) (1 + cot θ - cosec θ) =

    A] 0   B] 1   C] 2   D] -1

50] (sec A + tan A) (1 – sin A) =

    A] sec A   B] sin A   C] cosec A   D] cos A

51] $\dfrac{1+\tan^2 A}{1+\cot^2 A} =$

    A] $\sec^2 A$ B] -1   C] $\cot^2 A$ D] $\tan^2 A$