



SmartSteps Academy

College Masjid Road, Near College Masjid, Hailakandi Town W/N-3, Hailakandi
For Enquiries: 9101110392, 7002239812, 6003454430, 7002331585

Trigonometric Functions

DPP 1

- The minute hand of a watch is 35 cm long. How far does it move in 9 minutes:
 - 66 cm
 - 22 cm
 - 33 cm
 - none of these
- In two circles, arcs of equal length subtend 60° and 30° at their centres, then their radii are in ratio:
 - 2 : 1
 - 1 : 2
 - 1 : 1
 - none of these
- If $a = 105^\circ$, $b = 240^\circ$, then $\frac{a}{b} =$
 - 7 : 16
 - 16 : 7
 - 1 : 1
 - none of these
- The value of $\cos 1^\circ \cdot \cos 2^\circ \cdot \cos 3^\circ \dots \cos 179^\circ$ is:
 - 1
 - 1
 - 0
 - $\frac{1}{\sqrt{2}}$
- $\sin^2 1^\circ + \sin^2 2^\circ + \sin^2 3^\circ + \dots + \sin^2 89^\circ =$
 - 89
 - 44.5
 - 45
 - none of these
- $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ =$
 - 0
 - 1
 - 1
 - none of these
- $\sec^2 \theta = \frac{4xy}{(x+y)^2}$ is true if and only if:
 - $x + y \neq 0$
 - $x = y, x \neq 0$
 - $x = y$
 - $x \neq 0, y \neq 0$
- If $\sin A + \cos A = x$ and $\sin^3 A + \cos^3 A = y$, then:
 - $x^3 + 2x - 3y = 0$
 - $x^3 + 3x + 2y = 0$
 - $x^3 - 3x + 2y = 0$
 - $x^3 - 3x - 2y = 0$
- If $A + B = \frac{\pi}{4}$, then $(\tan A + 1)(\tan B + 1)$ is equal to:
 - 4
 - 1

- C. 2
D. 0
10. If $0 \leq \alpha, \beta \leq 90^\circ$ and $\tan(\alpha + \beta) = 3$ and $\tan(\alpha - \beta) = 2$, then the value of $\sin 2\alpha$ is:
A. $\frac{1}{\sqrt{2}}$
B. 1
C. 0
D. $\frac{1}{2}$
11. If $\sin \theta + \cos \theta = \sqrt{3} \cos \theta$, then value of $2 \cos \theta - \sin \theta$ is:
A. $\sqrt{3} \sin \theta$
B. $-\sqrt{2} \sin \theta$
C. $\sqrt{3} \cos \theta$
D. $-\sqrt{3} \cos \theta$
12. Which of the following is correct?
A. $\sin 1^\circ > \sin 1$
B. $\sin 1^\circ < \sin 1$
C. $\sin 1^\circ = \sin 1$
D. none of these
13. If $A = \cos^2 \theta + \sin^4 \theta$, then for all values of θ :
A. $1 \leq A \leq 2$
B. $\frac{13}{16} \leq A \leq 1$
C. $\frac{3}{4} \leq A \leq 1$
D. $0 \leq A < 2$
14. The maximum value of $12 \sin \theta - 9 \sin^2 \theta$ is:
A. 3
B. 4
C. 5
D. none of these