

Introduction to Trigonometry

Question 1.

If $\cos(\alpha + \beta) = 0$, then $\sin(\alpha - \beta)$ can be reduced to

- (a) $\cos \beta$
- (b) $\cos 2\beta$
- (c) $\sin \alpha$
- (d) $\sin 2\alpha$

Answer: (b) $\cos 2\beta$

Question 2.

If $\cos(40^\circ + A) = \sin 30^\circ$, the value of A is:?

- (a) 60°
- (b) 20°
- (c) 40°
- (d) 30°

Answer: (b) 20°

Question 3.

If $\sin x + \operatorname{cosec} x = 2$, then $\sin^{19}x + \operatorname{cosec}^{20}x =$

- (a) 2^{19}
- (b) 2^{20}
- (c) 2
- (d) 2^{39}

Answer: (c) 2

Question 4.

If $\cos 9a = \sin a$ and $9a < 90^\circ$, then the value of $\tan 5a$ is



- (a) $\frac{1}{\sqrt{3}}$
- (b) $\sqrt{3}$
- (c) 1
- (d) 0

Answer: (c) 1

Question 5.

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

- (a) $\tan \theta = \frac{1}{\sqrt{2}}$
- (b) $\tan \theta = \frac{1}{2}$
- (c) $\tan \theta = \frac{1}{3}$
- (d) $\tan \theta = \frac{1}{\sqrt{3}}$

Answer: (d) $\tan \theta = \frac{1}{\sqrt{3}}$

Question 6.

$(1 + \tan\theta + \sec\theta)(1 + \cot\theta - \operatorname{cosec}\theta)$ is equal to

- (a) 0
- (b) 1
- (c) 2
- (d) -1

Answer: (c) 2

Question 7.

Ratios of sides of a right triangle with respect to its acute angles are known as

- (a) trigonometric identities
- (b) trigonometry
- (c) trigonometric ratios of the angles
- (d) none of these

Answer: (c) trigonometric ratios of the angles

Question 8.

If $\tan \theta = \frac{12}{5}$, then $\frac{1+\sin\theta}{1-\sin\theta}$ is equal to

- (a) 24

- (b) $\frac{12}{13}$
- (c) 25
- (d) 9

Answer: (c) 25

Question 9.

The value of $\cos \theta \cos(90^\circ - \theta) - \sin \theta \sin(90^\circ - \theta)$ is:

- (a) 1
- (b) 0
- (c) -1
- (d) 2

Answer: (b) 0

Question 10.

If $x = a \cos \theta$ and $y = b \sin \theta$, then $b^2x^2 + a^2y^2 =$

- (a) ab
- (b) $b^2 + a^2$
- (c) a^2b^2
- (d) a^4b^4

Answer: (c) a^2b^2

Question 11.

If $\triangle ABC$ is right angled at C, then the value of $\cos(A + B)$ is

- (a) 0
- (b) 1
- (c) $\frac{1}{2}$
- (d) $\frac{\sqrt{3}}{2}$

Answer: (a) 0

Question 12.

If x and y are complementary angles, then

- (a) $\sin x = \sin y$
- (b) $\tan x = \tan y$



- (c) $\cos x = \cos y$
(d) $\sec x = \operatorname{cosec} y$

Answer: (d) $\sec x = \operatorname{cosec} y$

Question 13.

$\sin (45^\circ + \theta) - \cos (45^\circ - \theta)$ is equal to

- (a) $2 \cos \theta$
(b) 0
(c) $2 \sin \theta$
(d) 1

Answer: (b) 0

Question 14.

If $0^\circ < \theta < 90^\circ$, then $\sec \theta$ is (a) >1

- (b) <1
(c) $=1$
(d) 0

Answer: (a) >1

Question 15.

In right triangle ABC, right angled at C, if $\tan A = 1$, then the value of $2 \sin A \cos A$ is

- (a) 0
(b) 1
(c) -1
(d) 2

Answer: (b) 1

Question 16.

Given that $\sin A = \frac{1}{2}$ and $\cos B = \frac{1}{\sqrt{2}}$ then the value of $(A + B)$ is:

- (a) 30°
(b) 45°
(c) 75°
(d) 15°

Answer: (c) 75°

Question 17.

If $\sin A = \frac{1}{2}$, then the value of $\cot A$ is

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

Answer: (a) $\sqrt{3}$

Question 18.

If $\sqrt{3}\tan\theta = 3\sin\theta$, then the value of $\sin^2\theta - \cos^2\theta$ is

- (a) 0
- (b) 1
- (c) $\frac{1}{2}$
- (d) $\frac{1}{3}$

Answer: (d) $\frac{1}{3}$

Question 19.

Out of the following options, the two angles that are together classified as complementary angles are

- (a) 120° and 60°
- (b) 50° and 30°
- (c) 65° and 25°
- (d) 70° and 30°

Answer: (c) 65° and 25°

Question 20.

If $\sin \theta - \cos \theta = 0$, then the value of θ is

- (a) 90°
- (b) 30°
- (c) 45°
- (d) 60°

Answer: (c) 45°

Question 21.

If $\tan 2A = \cot (A - 18^\circ)$, then the value of A is

- (a) 24°
- (b) 18°
- (c) 27°
- (d) 36°

Answer: (d) 36°

Question 22.

If $\cos A + \cos^2 A = 1$, then $\sin^2 A + \sin^4 A$ is

- (a) -1
- (b) 0
- (c) 1
- (d) 2

Answer: (c) 1

Question 23.

If $\sin \theta + \sin^2 \theta = 1$, then $\cos^2 \theta + \cos^4 \theta =$ _____

- (a) -1
- (b) 0
- (c) 1
- (d) 2

Answer: (c) 1

Question 24.

$\sin 2B = 2 \sin B$ is true when B is equal to

- (a) 90°
- (b) 60°
- (c) 30°
- (d) 0°

Answer: (d) 0°
