

**Work sheet -3**

**Trigonometric Functions**

**MCQ ( 1 marks )**

1. 3tan x=5sin x, what is the value of cos x

a. 4/5 b. 3/5 c. 3/4 d. none

2. cot$ θ$ = sin 2$θ$ ($θ\ne $n$π$ , n is integer) if $θ$ equals

 a. 450 b. 900 c. 450 and 900 d. 600

3. The value of cos 0°. cos 1°. cos 2°. cos 3°… cos 89°. cos 90° is

 a.$\sqrt{3}$ b. ½ c. 0 d. 1/$\sqrt{2}$

4.  If x tan 45° sin 30° = cos 30° tan 30°, then x is equal to

 a. 1 b. -1 c. 1 d. 1/$\sqrt{2}$

5. Value of Tan (-150) is:

 a. √3 - 2 b. √3 + 2 c. 2 - √3 d. 2 + √3

6. If x and y are complementary angles, then

 a. sin x=sin y b. cos x= cos y c. tan x=tan y d. sec x=cosec y

7. sin 2B = 2 sin B is true when B is equal to

 a. 450 b. 00 c. 900 d. 600

8. The largest value of sin x cos x is

 a.$\frac{1}{√2}$ b.$ \frac{√3}{2}$ c.$ \frac{1}{2}$ d. 1

9. The general value of satisfying sin = - $\frac{1}{2}$ and tan =$\frac{1}{√3}$ is n$\in $ I

 a.$ nπ+ \frac{π}{6}$ b. $nπ+\left(-1\right)^{n} \frac{7π}{6}$ c. $2nπ+ \frac{7π}{6}$ d. $2nπ+ \frac{11π}{6}$

10. If ( 1 + tan x ) ( 1 + tan y ) = 2, then x + y =

 a. 300 b. 750 c. 450 d. 600

11. The maximum value of sin($x+ \frac{π}{6} $) + cos($x+ \frac{π}{6} $) in the interval (0,$ \frac{π}{2}$)

 a. 600 b. 300 c. 900 d. 150

12. If sin x - cos x = $√2$ , then x = ( n is any integer)

 a. $2nπ\pm π- \frac{π}{4}$ b. $2nπ$ c.$ (2n+1)π$ d. $2nπ- \frac{π}{4}$

13. Which of the following statements is incorrect ?

 a. cos x = $\frac{1}{2}$ b. sec x = $\frac{1}{2}$ c. tan x = 1 d. sin x = 1

14. If A and (2A – 45°) are acute angles such that sin A = cos (2A – 45°), then tan A is equal to

 a.$\frac{1}{√3}$ b.$ \frac{√3}{2}$ c.$ \frac{1}{2}$ d. 1

15. If sin θ + sin² θ = 1, then cos² θ + cos4 θ =

 a. 1 b. -1 c. 0 d. 1/$\sqrt{2}$

16. Assertion(A) : Sin(−$θ$) = −Sin $θ$

 Reason(R) : Sin$ θ$ is an odd function

 a) Assertion is true and Reason is true . Reason is correct explanation for Assertion.

 b) Assertion is true and Reason is true . Reason is not the correct explanation for Assertion.

 c) Assertion is true and Reason is false.

 d) Assertion is false but Reason is true.

17. Assertion(A) : Trigonometric ratios are true only for $θ$ ≤ 900

 Reason(R) : Trigonometric ratios can be expressed for $θ$ $\geq $ 900

 a) Assertion is true and Reason is true . Reason is correct explanation for Assertion.

 b) Assertion is true and Reason is true . Reason is not the correct explanation for Assertion.

 c) Assertion is true and Reason is false.

 d) Assertion is false but Reason is true.

**VSAQ (2 marks)**

1. Evaluate: cos (- 8700)

2. Evaluate: sin (- 10800)

3. Evaluate: cosec (- 8700)

4. Evaluate: sec (11700)

5. Evaluate: tan (15300)

6. Evaluate: cot (18900)

7. Evaluate: cot (- 8700)

8. Evaluate: sin (15600)

9. Evaluate: cos (16500)

10. Evaluate: sec (- 150)

11. Evaluate: cos (3750)

12. Evaluate: sin (-15450)

13. Prove sin26x-sin24x= sin 2x sin10x

14. Solve: tan x + tan 2x + tan 3x = 0

15. 4sin x cos x + 2sin x + 2cos x + 1 = 0.

16. A horse is tied to a post by a rope. If the horse moves along a circular path always

 keeping the rope tight and describes 66 m when it has traced out 45° at the centre,

 find the length of the rope.