ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

SOLUTION OF WORKSHEET-6

SUBJECT – MATHEMATICS

Term : 1st

Topic – Trigonometric inverse circular function function **Class: XII**

Full Marks: 15 **Date:18.05.2020**

Select the correct alternative of the following questions.

Q1. The principal value of $cos^{-1}(\frac{-1}{2})$ is

a. $\frac{\pi}{3}$ **b.** $\mathbf{\frac{2\pi}{3}}$ c. $\frac{\pi}{4}$ d. none of these

Q2. The principal value of $cosec^{-1}(-\sqrt{2})$ is

a. $\mathbf{-\frac{\pi}{4}}$ b. $\frac{3\pi}{4}$ c. $\frac{-\pi}{3}$ d. none of these

Q3. The principal value of $cot^{-1}\left(\frac{1}{\sqrt{3}}\right)$ is

a. $\frac{\pi}{6}$ b. $\frac{\pi}{4}$ c. $\frac{\pi}{3}$ d. none of these

Q4. The principal value of $tan^{-1}(-\sqrt{3})$ is

a. $\frac{\pi}{3}$ b. $\frac{\pi}{4}$ c. $\frac{-\pi}{4}$ **d. none of these**

Q5. The principal value of $cot^{-1}(\frac{-1}{\sqrt{3}})$ is

a. $\mathbf{\frac{2\pi}{3}}$ b. $\frac{\pi}{4}$ c. $\frac{\pi}{6}$ d. none of these

Q 6. The general value of $sin^{-1}(\frac{\sqrt{3}}{2})$ is

a. $n\pi - (-1)^n \frac{\pi}{3}$ b. $\mathbf{n\pi + (-1)^n \frac{\pi}{3}}$ c. $n\pi + (-1)^n \frac{\pi}{6}$ d. none of these

Q7. The general value of $cos^{-1}(-1)$ is

a. $2n\pi \pm \frac{\pi}{2}$ b. $2n\pi \pm \frac{\pi}{3}$ c. $\mathbf{2n\pi \pm \pi}$ d. none of these

Q8. The general value of $cot^{-1}(-\sqrt{3})$ is

a. $n\pi + \frac{5\pi}{6}$ b. $n\pi - \frac{5\pi}{6}$ c. $n\pi + \frac{\pi}{6}$ **d. none of these**

Q9. If $2tan^{-1}x = sin^{-1}k$, then the value of k is

a. $\frac{1-x^2}{1+x^2}$ b. $\frac{2x}{1-x^2}$ **c.** $\mathbf{\frac{2x}{1+x^2}}$ d. none of these

Q10. $tan^{-1}\frac{1}{2} + tan^{-1}\frac{1}{3}$

a. $\frac{\pi}{2}$ b. $\frac{\pi}{3}$ c. $\frac{\pi}{6}$ **d. none of these**

Q11. Which of the following is the value of $\cot(cosec^{-1}2 + cos^{-1}\frac{1}{2})$

a. 1 **b. 0** c. -1 d. none of these

Q12. Which of the following is the value of $(cos^{-1}\frac{1}{2} + 2sin^{-1}\frac{1}{2})$

a. $\frac{5\pi}{6}$ b. $\frac{\pi}{3}$ **c.** $\mathbf{\frac{2\pi}{3}}$ d. none **of** these

Q13. Which of the following is the value of $(cos^{-1}\frac{1}{x} + cos^{-1}\frac{1}{y})$, where $sec^{-1}x = cosec^{-1}$y

a. π b. $\frac{2\pi}{3}$ c. $\frac{5\pi}{6}$ **d. none of these**

Q11. Which of the following is the value of $(sin^{-1}x - cos^{-1}x = \frac{\pi}{6})$

a. 1 b. $\frac{1}{2}$ c. $\frac{1}{\sqrt{2}}$ **d. none of these**

Q11. Which of the following is the value of $\tan(tan^{-1}x + tan^{-1}\frac{1}{x})$ for x>0,

a. $\mathbf{\frac{1}{\sqrt{3}}}$ b. $\sqrt{3}$ c. 1 d. none of these