



ST. LAWRENCE HIGH SCHOOL



A Jesuit Christian minority Institution

Subject: Mathematics

Class- X

Date: 13/03/2021

Topic: Trigonometric ratios and identities

Worksheet-14

1. Choose the correct alternative.

1x15=15

a) If $\alpha=90^\circ$, $\beta=30^\circ$, find the value of $\sin (\alpha-\beta)$.

i) $2/\sqrt{3}$ ii) $\sqrt{3}/2$ iii) $1/2$ iv) none of these

b) If $\sec\theta-\cos\theta=3/2$, find the value of $\sec\theta+\cos\theta$

i) $2/5$ ii) $5/3$ iii) $5/2$ iv) none of these

c) For some value of α the value of $\operatorname{cosec}\alpha =$ _____

i) greater than 1 ii) less than 1 iii) equal to 1 iv) none of these

d) If $\tan\theta =2$ then the value of $\operatorname{cosec}\theta$ is _____

i) $2/5$ ii) $\sqrt{5}/2$ iii) $2/\sqrt{5}$ iv) none of these

e) If $\cos\theta = 3/5$, then the value of $5 \sin\theta - 3 \tan\theta =$ _____

i) 0 ii) 1 iii) $1/2$ iv) none of these

f) find $\sin 45^\circ + \cos 45^\circ =$ _____

i) 2 ii) $\sqrt{2}$ iii) $\sqrt{3}/2$ iv) none of these

g) If $\frac{\sin\theta+\cos\theta}{\sin\theta-\cos\theta} = \frac{\sqrt{3}+1}{\sqrt{3}-1}$, then $\cos\theta =$ _____

i) $1/2$ ii) $2/3$ iii) $2/5$ iv) none of these

h) Find the value of $\sin \frac{\pi}{3} \tan \frac{\pi}{6} + \sin \frac{\pi}{2} \cos \frac{\pi}{3} - 2 \sin^2 \frac{\pi}{4}$

i) 1 ii) 2 iii) 4 iv) 0

i) If $\sec^2 \theta = 2 \tan \theta$, then the value of θ is

i) 90° ii) 45° iii) 60° iv) none of these

j) If $\cos \theta = \cos^2 \alpha - \sin^2 \alpha$ and if $\alpha = 30^\circ$ then find the value of θ .

i) 60° ii) 45° iii) 90° iv) 30°

k) If $\tan \theta + \cot \theta = 2$ and θ is a positive acute angle, then which of the following is the correct value of $\sin \theta$

i) $\frac{1}{2}$ ii) $\frac{\sqrt{3}}{2}$ iii) $\sqrt{2}$ iv) $\frac{1}{\sqrt{2}}$

l) Find the value of x , if $\cot^2 \frac{\pi}{4} - x \sin^2 \frac{\pi}{3} = \frac{1}{2}$

i) $\frac{2}{3}$ ii) 2 iii) 3 iv) 1

m) If $3 \sin^2 \theta - \cos^2 \theta = 0$, then the value of θ is ____

i) 45° ii) 30° iii) 60° iv) 90°

n) If $x \cos 60^\circ + \sin 90^\circ = \tan 45^\circ + \cot 45^\circ$, find x .

i) 4 ii) 3 iii) 2 iv) 1

o) If $x \tan 30^\circ + y \cot 60^\circ = 0$ and $2x - y \tan 45^\circ = 1$, find the value of x and y

i) $x = \frac{1}{3}$, $y = -\frac{1}{3}$ ii) $x = -\frac{1}{3}$, $y = \frac{1}{3}$ iii) $x = \frac{1}{2}$, $y = -\frac{1}{2}$ iv) none of these

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