



ST. LAWRENCE HIGH SCHOOL



A Jesuit Christian minority Institution

Subject: Mathematics

Class: X

Date: 16.04.202

Answer key of Worksheet -9

Chapter- Trigonometric Ratios of complementary angles

Topic- Trigonometric Ratios of complementary angles

1. Choose the correct alternative. 1x15=15

a) $\frac{\sin 16^\circ}{\cos 74^\circ} = \underline{\hspace{2cm}}$ Ans iii) 1

b) $\tan^2 66^\circ - \cot^2 24^\circ = \underline{\hspace{2cm}}$ Ans i) 0

c) $\sin 53^\circ \cos 37^\circ + \cos 53^\circ \sin 37^\circ = \underline{\hspace{2cm}}$ Ans iii) 1

d) $\sec 70^\circ \sin 20^\circ + \cos 20^\circ \operatorname{cosec} 70^\circ = \underline{\hspace{2cm}}$ Ans i) 2

e) $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ = \underline{\hspace{2cm}}$ Ans iii) 1

f) $\frac{\sin 70^\circ}{\cos 20^\circ} + \frac{\operatorname{cosec} 70^\circ}{\sec 20^\circ} - 2 \cos 70^\circ \operatorname{cosec} 20^\circ = \underline{\hspace{2cm}}$ Ans ii) 1 iii) 3

g) $\frac{\sin 18^\circ}{\cos 72^\circ} + \sqrt{3} (\tan 10^\circ \tan 30^\circ \tan 40^\circ \tan 50^\circ \tan 80^\circ) = \underline{\hspace{2cm}}$ Ans iii) 2

h) $\frac{\cos(90^\circ - \theta)}{1 + \sin(90^\circ - \theta)} + \frac{1 + \sin(90^\circ - \theta)}{\cos(90^\circ - \theta)} = \underline{\hspace{2cm}}$ Ans i) $2 \operatorname{cosec} \theta$

i) $\cot \tan(90^\circ - \theta) - \sec(90^\circ - \theta) \operatorname{cosec} \theta + \sqrt{3} \tan 12^\circ \tan 60^\circ \tan 78^\circ = \underline{\hspace{2cm}}$
Ans ii) 2

j) $\cos 15^\circ \cos 35^\circ \operatorname{cosec} 55^\circ \cos 60^\circ \operatorname{cosec} 75^\circ = \underline{\hspace{2cm}}$ Ans i) $\frac{1}{2}$

k) $\sin(70^\circ + \theta) - \cos(20^\circ - \theta) = \underline{\hspace{2cm}}$ Ans iii) 0

l) $\sin(50^\circ + \theta) - \cos(40^\circ - \theta) + \tan 1^\circ \tan 10^\circ \tan 20^\circ \tan 70^\circ \tan 80^\circ \tan 89^\circ = \underline{\hspace{2cm}}$
Ans i) 1

m) If $\cos 2\theta = \sin 4\theta$ where 2θ and 4θ are two positive angles. The value of θ is
Ans ii) 15°

m) If $\sin 3A = \cos (A - 26^\circ)$ where $3A$ is a positive acute angle ,then value of A is

Ans i) 29°

o) If $\sec 4A = \operatorname{cosec}(A - 15^\circ)$,where $4A$ is a positive acute angle then value of A is

Ans ii) 21°

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