



ST. LAWRENCE HIGH SCHOOL



A Jesuit Christian minority Institution

Subject: Mathematics

Class: X

Date: 16.04.202

Worksheet -9

Chapter- Trigonometric Ratios of complementary angles

Topic- Trigonometric Ratios of complementary angles

1. Choose the correct alternative. 1x15=15

- a) $\frac{\sin 16^\circ}{\cos 74^\circ} =$ _____ i) 0 ii) 2 iii) 1 iv) none of these
- b) $\tan^2 66^\circ - \cot^2 24^\circ =$ _____ i) 0 ii) 1 iii) 3 iv) none of these
- c) $\sin 53^\circ \cos 37^\circ + \cos 53^\circ \sin 37^\circ =$ _____ i) 2 ii) 0 iii) 1 iv) none of these
- d) $\sec 70^\circ \sin 20^\circ + \cos 20^\circ \operatorname{cosec} 70^\circ =$ _____ i) 2 ii) 1 iii) 0 iv) none of these
- e) $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ =$ _____ i) 0 ii) 3 iii) 1 iv) none of these
- f) $\frac{\sin 70^\circ}{\cos 20^\circ} + \frac{\operatorname{cosec} 70^\circ}{\sec 20^\circ} - 2 \cos 70^\circ \operatorname{cosec} 20^\circ =$ _____ i) 0 ii) 1 iii) 3 iv) none of these
- g) $\frac{\sin 18^\circ}{\cos 72^\circ} + \sqrt{3} (\tan 10^\circ \tan 30^\circ \tan 40^\circ \tan 50^\circ \tan 80^\circ) =$ _____ i) 1 ii) 3 iii) 2
iv) none of these
- h) $\frac{\cos(90^\circ - \theta)}{1 + \sin(90^\circ - \theta)} + \frac{1 + \sin(90^\circ - \theta)}{\cos(90^\circ - \theta)} =$ _____ i) $2 \operatorname{cosec} \theta$ ii) $2 \cos \theta$ iii) $2 \sin \theta$ iv) none of these
- i) $\cot \tan(90^\circ - \theta) - \sec(90^\circ - \theta) \operatorname{cosec} \theta + \sqrt{3} \tan 12^\circ \tan 60^\circ \tan 78^\circ =$ _____ i) 4
ii) 2 iii) 0 iv) none of these
- j) $\cos 15^\circ \cos 35^\circ \operatorname{cosec} 55^\circ \cos 60^\circ \operatorname{cosec} 75^\circ =$ _____ i) $\frac{1}{2}$ ii) $\frac{2}{3}$ iii) 1 iv) none of these
- k) $\sin(70^\circ + \theta) - \cos(20^\circ - \theta) =$ _____ i) 3 ii) 2 iii) 0 iv) none of these
- l) $\sin(50^\circ + \theta) - \cos(40^\circ - \theta) + \tan 1^\circ \tan 10^\circ \tan 20^\circ \tan 70^\circ \tan 80^\circ \tan 89^\circ =$ _____
i) 1 ii) 2 iii) 4 iv) none of these

m) If $\cos 2\theta = \sin 4\theta$ where 2θ and 4θ are two positive angles. The value of θ is i) 20°
ii) 15° iii) 30° iv) none of these

n) If $\sin 3A = \cos (A - 26^\circ)$ where $3A$ is a positive acute angle, then value of A is i) 29° ii)
 30° iii) 26° iv) none of these

o) If $\sec 4A = \operatorname{cosec}(A - 15^\circ)$, where $4A$ is a positive acute angle then value of A is i) 32°
ii) 21° iii) 34° iv) none of these

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