



# ST. LAWRENCE HIGH SCHOOL



## A Jesuit Christian minority Institution

Subject: Mathematics

Class: X

Date:15.03.2021

Worksheet -15

Chapter- Trigonometric Ratios of complementary angles

Topic-Trigonometric Ratios of complementary angles

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1. Choose the correct alternative.

1x15=15

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

i)  $30^\circ$  ii)  $20^\circ$  iii)  $29^\circ$  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)

g)  $\frac{\sin 70^\circ}{\cos 20^\circ} + \frac{\operatorname{cosec} 70^\circ}{\sec 20^\circ} - 2 \cos 70^\circ \operatorname{cosec} 20^\circ =$  \_\_\_\_\_ i) 0 ii) 1 iii) 3 iv) none of these

h)  $\frac{\sin 18^\circ}{\cos 72^\circ} + \sqrt{3} (\tan 10^\circ \tan 30^\circ \tan 40^\circ \tan 50^\circ \tan 80^\circ) =$  \_\_\_\_\_ 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

$\cot$  of these

i)  $\cot \theta \tan (90^\circ - \theta) - \sec (90^\circ - \theta) \operatorname{cosec} \theta + \sqrt{3} \tan 12^\circ \tan 60^\circ \tan 78^\circ$   
 $=$  \_\_\_\_\_ 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  $2\theta$  and  $4\theta$  are two positive angles. The value of  $\theta$  is i)  $20^\circ$  ii)  $15^\circ$  iii)  $30^\circ$  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)  $29^\circ$  ii)  $30^\circ$  iii)  $26^\circ$  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)  $32^\circ$  ii)  $21^\circ$  iii)  $34^\circ$  iv) none of these

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