National Institute of Open Schooling
Senior Secondary Course: Mathematics
Lesson 4: Trigonometric Functions-II
Worksheet-4

1. If $\tan\alpha = \frac{a}{a+1}$ and $\tan\beta = \frac{1}{2a+1}$, then show that $\alpha + \beta = \frac{\pi}{4}$

2. If $x - y = \frac{\pi}{4}$, then prove that $(1+\tan x)(1+\tan y) = 2\tan x$

3. If that $A + B = 45°$ than show that

   i. $(1+\tan A)(1+\tan B) = 2$

   ii. $(\cot A - 1)(\cot B - 1) = 2$

4. Find out the following trigonometry value:

   i. $\cos 15°$

   ii. $\sin 75°$

   iii. $\tan 15°$

5. Derive any one trigonometry function of 3A in terms of A

6. Find out the value of special trigonometry angles of $\sin 18°$ *and* $\tan 22\left(\frac{1}{2}\right)°$

7. Show that the trigonometry function $\sin 10°\sin 50°\sin 60°\sin 70° = \frac{\sqrt{3}}{16}$

8. Find out the general solution of

   i. $\sin^2 x = \sin^2\alpha$

   ii. $\tan^2 x = \tan^2\alpha$

9. Find out principal and general solution of the trigonometry function

$\tan x = \sqrt{3}$

10. Find out the value of $x\sqrt{3}\cos x - \sin x = 1$