

## NON-CALCULATOR

**Simplify:**

1)  $\sin \alpha \tan \alpha \sec \alpha \csc \alpha$

2)  $\frac{(\cot \theta)^2}{1 - (\sin \theta)^2}$

3)  $\frac{\sin 2\beta}{\cos 2\beta - \cos^2 \beta}$

4)  $\frac{2}{1 - \csc \gamma} - \frac{2}{1 + \csc \gamma}$

5)  $1 - 4\sin^2 \theta \cos^2 \theta$

6)  $2 \sin \alpha \cos^3 \alpha + 2 \sin^3 \alpha \cos \alpha$

**Prove the Identity:**

7)  $\tan^2 x - \sin^2 x = \sin^2 x \tan^2 x$

8)  $\frac{\cos \sigma}{1 - \tan \sigma} + \frac{\sin \sigma}{1 - \cot \sigma} = \cos \sigma + \sin \sigma$

9)  $\sec x - \sin x \tan x = \cos x$

10)  $\cos^2 2\theta - \cos^2 \theta = \sin^2 \theta - \sin^2 2\theta$

**Solve on the interval  $[0, 2\pi)$ :**

11)  $\cos 2x = \cos x$

12)  $\sqrt{2} \sec x \sin x = \sec x$

13)  $3 \tan^2 \theta = 1$

**Find the exact value of x:**

14)  $\sin \frac{5\pi}{12} = x$

15)  $\cos \frac{11\pi}{12} = x$

**CALCULATOR**

**Solve on the interval  $[0, 2\pi)$ . Round to the nearest thousandths.**

16)  $\sin^2 x + 0.5 = 3 \cos x$

17)  $x^2 = 10 - \sin^4 x$

**Prove the Identity algebraically and graphically.**

18)  $\sin 4\theta = 2 \sin 2\theta \cos 2\theta$

19)  $\csc x + \cot x = \frac{\sin x}{1 + \cos x}$

**In  $\triangle ABC$ , round to the nearest thousandths (3 decimal places).**

20) Solve the triangle given  $m\angle A=79^\circ$ ,  $m\angle B=33^\circ$ ,  $a=7$

21) Solve the triangle given  $a=5$ ,  $b=8$ ,  $m\angle B=30^\circ$

22) Find  $m\angle A$  given  $a=5$ ,  $b=7$ ,  $c=6$

23) Solve  $\triangle ABC$  given  $a=6$ ,  $b=7$ ,  $m\angle A=30^\circ$