

Trigonometry 5 : Identity Proofs :

1) Prove that

$$\sin \theta + \cos \theta \equiv (\tan \theta + 1) \cos \theta$$

2) Prove that if $\sin x = \frac{o}{h}$, $\cos x = \frac{a}{h}$

then $\sin^2 x + \cos^2 x = 1$

3) Prove that

$$\sin^3 \theta \equiv \tan \theta \cos \theta - \sin \theta \cos^2 \theta$$

4) Prove that if $\sin \theta = \frac{o}{h}$, $\cos \theta = \frac{a}{h}$, $\tan \theta = \frac{o}{a}$

then $\frac{\sin \theta}{\cos \theta} \equiv \tan \theta$

5) Prove that

$$3 - 2 \cos^2 x \equiv 2 \sin^2 x + 1$$

6) Prove that

$$\cos \theta (3 \cos^2 \theta - \tan \theta) \equiv 3 \cos \theta - 3 \sin^2 \theta \cos \theta - \sin \theta$$

7) Prove that

$$\cos \theta (2 \tan \theta - 3 \sin^2 \theta) \equiv 2 \sin \theta - 3 \cos \theta + 3 \cos^3 \theta$$

8) Prove that

$$1 - \tan^2 x \equiv \frac{\sin^2 x (\cos^2 x - 1) + \cos^4 x}{\cos^2 x}$$