

Power Reducing Formulas...

for $\sin^2 \theta$

$$\text{Power of 2} \Rightarrow \sin^2 \theta = \frac{1 - \cos(2\theta)}{2} \Leftarrow \text{power of 1}$$

$$\text{Proof: } \cos(2\theta) = 1 - 2\sin^2 \theta$$

$$2\sin^2 \theta = 1 - \cos(2\theta)$$

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

Power Reducing Formulas...

for $\cos^2 \theta$

$$\text{Power of 2} \Rightarrow \cos^2 \theta = \frac{1 + \cos(2\theta)}{2} \Leftarrow \text{power of 1}$$

$$\text{Proof: } \cos(2\theta) = 2\cos^2 \theta - 1$$

$$1 + \cos(2\theta) = 2\cos^2 \theta$$

$$\frac{1 + \cos(2\theta)}{2} = \cos^2 \theta$$

Power Reducing Formulas...

for $\tan^2 \theta$

$$\text{Power of 2} \Rightarrow \tan^2 \theta = \frac{1 - \cos(2\theta)}{1 + \cos(2\theta)} \Leftarrow \text{power of 1}$$

$$\text{Proof: } \tan^2 \theta = \frac{\sin^2 \theta}{\cos^2 \theta} = \frac{\frac{1 - \cos(2\theta)}{2}}{\frac{1 + \cos(2\theta)}{2}} = \frac{1 - \cos(2\theta)}{1 + \cos(2\theta)}$$

$$\sin^2 \theta = \frac{1 - \cos(2\theta)}{2} \quad \cos^2 \theta = \frac{1 + \cos(2\theta)}{2}$$

Express $\sin^4 \theta$ with powers of 1

$$\sin^4 \theta$$

Express $\cos^4 \theta$ with powers of 1

$$\cos^4 \theta$$

Prove the following identities

$$\sec^2 \frac{\theta}{2} = \frac{2}{1 + \cos \theta}$$

Prove the following identities

$$\sin^2 \theta \cos^2 \theta = \frac{1}{8} [1 - \cos(4\theta)]$$

Power Reducing Formulas

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

$$\cos^2 \theta = \frac{1 + \cos(2\theta)}{2}$$

$$\tan^2 \theta = \frac{1 - \cos(2\theta)}{1 + \cos(2\theta)}$$