Warm Up

Prove the following identities:

$$\tan\theta + \tan^3\theta = \frac{1}{\boxed{\cot\theta}\cos^2\theta}$$

$$\boxed{\tan\theta}\boxed{(1+\tan^2\theta)}$$

$$\frac{\sin\theta}{\cos\theta}\cdot\sec^2\theta$$

$$\frac{\sin\theta}{\cos\theta}\cdot\frac{1}{\cos^2\theta}$$

$$\boxed{\frac{\sin\theta}{\cos^3\theta}}$$

$$\frac{1}{\frac{\cos\theta}{\sin\theta}\cdot\cos^2\theta}$$

$$\frac{1}{\frac{\cos^3\theta}{\sin\theta}}$$

$$1\cdot\frac{\sin\theta}{\cos^3\theta}$$

$$\boxed{\frac{\sin\theta}{\cos^3\theta}}$$

$$\tan\theta + \tan^3\theta = \frac{1}{\cot\theta\cos^2\theta}$$

$$\underline{\underline{\tan\theta}}\,\underline{\underline{(1+\tan^2\theta)}}$$

$$\boxed{\tan\theta\sec^2\theta}$$

$$\boxed{\left(\frac{1}{\cot\theta}\right)}\boxed{\left(\frac{1}{\cos^2\theta}\right)}$$

$$\boxed{\tan\theta\,\sec^2\theta}$$

Questions from homework

⑥ $\sin^2\theta + 2\cos^2\theta - 1 = \cos^2\theta$

group like terms

$2\cos^2\theta - \cos^2\theta$

$\cos^2\theta$

$\boxed{1 - \sin^2\theta}$

$\cos^2\theta$

⑪ $\dfrac{1 + 2\sin\theta\cos\theta}{\sin\theta + \cos\theta} = \dfrac{\sin\theta + \cos\theta}{1}$

$\boxed{1 + 2\sin\theta\cos\theta}$

$(\sin\theta + \cos\theta)(\sin\theta + \cos\theta)$

$\sin^2\theta + 2\sin\theta\cos\theta + \cos^2\theta$

$\boxed{1 + 2\sin\theta\cos\theta}$

$$\frac{1}{\sec^2\theta\cot\theta} = \frac{\sin\theta - \sin^3\theta}{\cos\theta}$$

$$\boxed{\frac{1}{\sec^2\theta}} \cdot \boxed{\frac{1}{\cot\theta}}$$

$$\cos^2\theta \cdot \boxed{\tan\theta}$$

$$\cancel{\cos^2\theta} \cdot \frac{\sin\theta}{\cancel{\cos\theta}}$$

$$\boxed{\sin\theta\cos\theta}$$

$$\frac{\sin\theta\left(\boxed{1-\sin^2\theta}\right)}{\cos\theta}$$

$$\frac{\sin\theta\,\cancel{\cos^2\theta}}{\cancel{\cos\theta}}$$

$$\boxed{\sin\theta\cos\theta}$$

Homework

③ $\cos\theta + \boxed{\tan\theta}\sin\theta = \boxed{\sec\theta}$

$$\cos\theta + \left(\frac{\sin\theta}{\cos\theta}\right)\sin\theta$$

$$\frac{\cos\theta}{1} + \frac{\sin^2\theta}{\cos\theta}$$

$$\frac{\boxed{\cos^2\theta + \sin^2\theta}}{\cos\theta}$$

$$\boxed{\frac{1}{\cos\theta}}$$

$$\boxed{\frac{1}{\cos\theta}}$$