Verifying Trig Identities

(Double & Half Angles)

Write each expression in terms of a single trigonometric function.

1. $\cos^2 5 - \sin^2 5$

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

$\cos 2\theta$

$\cos 2 \cdot 5$

$\boxed{\cos 10}$

2. $\dfrac{2\tan\left(\frac{\pi}{6}\right)}{1-\tan^2\left(\frac{\pi}{6}\right)}$

$\dfrac{2\tan\theta}{1-\tan^2\theta}$

$\tan 2\theta$

$\tan 2 \cdot \frac{\pi}{6}$

$\boxed{\tan\frac{\pi}{3}}$

3. Verify: $\cos^4 x - \sin^4 x = \cos 2x$

$(\cos^2 x + \sin^2 x)(\cos^2 x - \sin^2 x)$

$1 \quad (\quad \cos 2x \quad)$

$\boxed{\cos 2x}$ ✓