Calculus 12
10-4 Double Angle Formulas

1. Use a double angle formula to rewrite each expression.

a) $\cos 2(2x)$

b) $\sin 3x$

c) $\tan 6x$

2. Express as a single sine or cosine function.

a) $2\sin 3\theta \cos 3\theta$

b) $6\sin\theta\cos\theta$

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

d) $1 - 2\sin^2\frac{\theta}{4}$

3. If $\cos\theta = -\frac{4}{5}$, $\frac{\pi}{2} \le \theta \le \pi$, find the value of $\sin 2\theta$ and $\cos 2\theta$. Determine the quadrant of angle 2θ.

4. If $\sin\theta = \frac{2}{3}$, $0 \le \theta \le \frac{\pi}{2}$, find the value of $\sin 4\theta$.

5. If $\tan a = \frac{1}{2}$, $0 \le a \le \frac{\pi}{2}$, find the value of $\tan 2a$.