## 3.7 Products, Sums, Linear Combinations, and Applications

3. Using the difference-to-product formulas:

$$\frac{\cos 3a - \cos 5a}{\sin 3a - \sin 5a} = -\tan 4a$$

$$\frac{-2\sin\left(\frac{3a+5a}{2}\right)\sin\left(\frac{3a-5a}{2}\right)}{2\sin\left(\frac{3a-5a}{2}\right)\cos\left(\frac{3a+5a}{2}\right)}$$

$$-\frac{\sin 4a}{\cos 4a}$$

$$-\tan 4a$$

4. Using the product-to-sum formula:

$$\sin 6\theta \sin 4\theta$$

$$\frac{1}{2}\left(\cos(6\theta - 4\theta) - \cos(6\theta + 4\theta)\right)$$

$$\frac{1}{2}(\cos 2\theta - \cos 10\theta)$$