

§2.5: Double-Angle Formulas and Product-to-Sum Formulas

1.] Use a double-angle formula to evaluate $\sin\left(\frac{\pi}{3}\right)$ exactly.

2.] Suppose $\sin(\theta) = \frac{3}{5}$ and θ is in the first quadrant. Find $\sin(2\theta)$, $\cos(2\theta)$ and $\tan(2\theta)$.

3.] Find the general solution to the equation: $2\cos(x) + \sin(2x) = 0$

4.] Verify the following identity: $(\sin(x) + \cos(x))^2 = 1 + \sin(2x)$.

5.] Write the expression $\cos^4(x)$ in terms of first powers of cosine.

6.] Use a product-to-sum formula to write $\sin(5\theta) \sin(3\theta)$ as a sum or difference.