

Double-Angle and Half-Angle Identities Exit Quiz

Part A Instructions: Solve the following using half-angle and double-angle identities.

1. $\sin(2\theta) = \underline{\hspace{2cm}}$, given that $\tan(\theta) = 1$ and $\sin(\theta) = \frac{1}{\sqrt{2}}$

2. $\cos(2\theta) = \underline{\hspace{2cm}}$, given that $\operatorname{cosec}(\theta) = \sqrt{3}$

3. $\cos(22.5^\circ) = \underline{\hspace{2cm}}$, given that $\cos(45^\circ) = \frac{1}{\sqrt{2}}$

4. $\tan(15^\circ) = \underline{\hspace{2cm}}$, given that $\cos(30^\circ) = \frac{\sqrt{3}}{2}$

Part B Instructions: Answer the question below.

5. Write $\cos^4(\theta)$ in terms of trigonometric functions with their first powers.

Double-Angle and Half-Angle Identities Exit Quiz**Answers: Part A Instructions:** Solve the following using half-angle and double-angle identities.

1. $\sin(2\theta) = \underline{\underline{\frac{1}{2}}}$, given that $\tan(\theta) = 1$ and $\sin(\theta) = \frac{1}{\sqrt{2}}$

2. $\cos(2\theta) = \underline{\underline{\frac{1}{3}}}$, given that $\operatorname{cosec}(\theta) = \sqrt{3}$

3. $\cos(22.5^\circ) = \underline{\underline{\frac{\sqrt{2+\sqrt{2}}}{2}}}$, given that $\cos(45^\circ) = \frac{1}{\sqrt{2}}$

4. $\tan(15^\circ) = \underline{\underline{\frac{\sqrt{2}-\sqrt{3}}{\sqrt{2}+\sqrt{3}}}}}$, given that $\cos(30^\circ) = \frac{\sqrt{3}}{2}$

Part B Instructions: Answer the question below.5. Write $\cos^4(\theta)$ in terms of trigonometric functions with their first powers.

$$\underline{\underline{\frac{3}{8} + \frac{1}{2}\cos(2\theta) + \frac{1}{8}\cos(4\theta)}}$$