

Double-Angle and Half-Angle formulas

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the information given about the angle θ , to find the exact value of the indicated trigonometric function.

1) $\cos \theta = -\frac{5}{13}$, θ in quadrant II Find $\sin 2\theta$. 1) _____

- A) $\frac{120}{169}$ B) $-\frac{120}{169}$ C) $\frac{119}{169}$ D) $-\frac{119}{169}$

2) $\sin \theta = -\frac{4}{5}$, θ in quadrant IV Find $\sin 2\theta$. 2) _____

- A) $\frac{24}{25}$ B) $-\frac{24}{25}$ C) $-\frac{7}{25}$ D) $\frac{7}{25}$

3) $\sin \theta = -\frac{4}{5}$, θ in quadrant IV Find $\cos 2\theta$. 3) _____

- A) $\frac{7}{25}$ B) $\frac{24}{25}$ C) $-\frac{7}{25}$ D) $-\frac{24}{25}$

Answer the question.

4) Find $\cos \theta$ given that $\cos 2\theta = \frac{5}{9}$ and $0 \leq \theta < \frac{\pi}{2}$. 4) _____

- A) $\frac{\sqrt{7}}{7}$ B) 3 C) $\frac{3}{7}$ D) $\frac{\sqrt{7}}{3}$

Find the exact value by using a half-angle identity.

5) $\sin 22.5^\circ$ 5) _____

- A) $\frac{1}{2} \sqrt{2 + \sqrt{2}}$ B) $-\frac{1}{2} \sqrt{2 + \sqrt{2}}$ C) $-\frac{1}{2} \sqrt{2 - \sqrt{2}}$ D) $\frac{1}{2} \sqrt{2 - \sqrt{2}}$

6) $\cos 22.5^\circ$ 6) _____

- A) $-\frac{1}{2} \sqrt{2 - \sqrt{2}}$ B) $\frac{1}{2} \sqrt{2 + \sqrt{2}}$ C) $\frac{1}{2} \sqrt{2 - \sqrt{2}}$ D) $-\frac{1}{2} \sqrt{2 + \sqrt{2}}$

Simplify.

7) $1 - 2\sin^2 \frac{x}{2}$ 7) _____

- A) $\sin 2x$ B) $\cos x$ C) $\sin x$ D) $\cos 2x$

Answer the question.

8) Find $\cos \theta$ given that $\sin\left(\frac{\theta}{2}\right) = \frac{5}{8}$ and $0 \leq \theta < \frac{\pi}{2}$. 8) _____

- A) $\frac{7}{32}$ B) $\frac{7}{9}$ C) $\frac{9}{32}$ D) $\frac{5}{32}$

Answer Key

Testname: DOUBLE-ANGLE AND HALF-ANGLE FORMULAS

- 1) B
- 2) B
- 3) C
- 4) D
- 5) D
- 6) B
- 7) B
- 8) A