

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

Find the exact value of the expression.

1) $\cos 285^\circ$ 1) _____
 A) $-\frac{\sqrt{2}(\sqrt{3}-1)}{4}$ B) $\frac{\sqrt{2}(\sqrt{3}-1)}{4}$ C) $-\sqrt{2}(\sqrt{3}-1)$ D) $-\sqrt{2}(\sqrt{3}+1)$

2) $\sin 255^\circ \cos 15^\circ - \cos 255^\circ \sin 15^\circ$ 2) _____
 A) $-\frac{\sqrt{3}}{2}$ B) $\frac{\sqrt{3}}{2}$ C) $-\frac{1}{2}$ D) $\frac{17}{4}$

Find the exact value under the given conditions.

3) $\sin \alpha = -\frac{7}{25}$, $\frac{3\pi}{2} < \alpha < 2\pi$; $\cos \beta = -\frac{\sqrt{21}}{5}$, $\pi < \beta < \frac{3\pi}{2}$ Find $\sin(\alpha - \beta)$. 3) _____
 A) $\frac{48 + 7\sqrt{21}}{125}$ B) $\frac{-14 + 24\sqrt{21}}{125}$ C) $\frac{-14 - 24\sqrt{21}}{125}$ D) $\frac{-48 + 7\sqrt{21}}{125}$

Solve the problem.

4) If $\cos \theta = \frac{1}{3}$, θ in quadrant IV, find the exact value of $\sin\left(\theta + \frac{\pi}{3}\right)$ 4) _____
 A) $\frac{\sqrt{3} + \sqrt{15}}{8}$ B) $\frac{\sqrt{15} - \sqrt{3}}{8}$ C) $\frac{-2\sqrt{2} + \sqrt{3}}{6}$ D) $\frac{\sqrt{15} - 4\sqrt{3}}{16}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Establish the identity.

5) $\cos(x - y) - \cos(x + y) = 2 \sin x \sin y$ 5) _____

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6) $\cos\left(\tan^{-1} \frac{5}{12} - \cos^{-1} \frac{4}{5}\right)$ 6) _____
 A) $\frac{7}{13}$ B) $\frac{13}{24}$ C) $\frac{63}{65}$ D) $\frac{52}{65}$

Write the trigonometric expression as an algebraic expression containing u and v.

7) $\cos(\sin^{-1} u + \cos^{-1} v)$ 7) _____
 A) $v\sqrt{1-u^2} + u\sqrt{1-v^2}$ B) $uv + (\sqrt{1-u^2})(\sqrt{1-v^2})$
 C) $uv - (\sqrt{1-u^2})(\sqrt{1-v^2})$ D) $v\sqrt{1-u^2} - u\sqrt{1-v^2}$