

Spiral Test Review: Chapter 7.1-7.6

ALL PROBLEMS MUST BE DONE ON SEPARATE PAPER OTHERWISE; THE REVIEW WILL NOT BE GRADED. SHOW ALL WORK FOR CREDIT. REVIEW IS DUE ON TEST DAY.

Find the exact value of the expression.

1) $\sin^{-1}0$ 2) $\cos^{-1}\frac{\sqrt{3}}{2}$ 3) $\tan^{-1}1$

Find the exact value of the expression. Do not use a calculator.

4) $\cos^{-1}(\cos \pi)$ 5) $\cos^{-1}\left(\cos \frac{7\pi}{6}\right)$ 6) $\tan^{-1}\left(\tan\left(-\frac{\pi}{6}\right)\right)$ 7) $\sin^{-1}\left(\sin \frac{5\pi}{4}\right)$

Find the exact value, if any, of the composite function. If there is no value, say it is "not defined". Do not use a calculator.

8) $\cos\left[\cos^{-1}\left(-\frac{8}{11}\right)\right]$

Find the exact value of the expression. Do not use a calculator.

9) $\sin^{-1}\left(\sin \frac{7\pi}{6}\right)$ 10) $\sin^{-1}\left[\sin\left(-\frac{7}{10}\right)\right]$

Find the exact value of the expression.

11) $\sin\left[\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$ 12) $\sin\left[\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$
13) $\cos^{-1}\left[\cos\left(-\frac{5\pi}{4}\right)\right]$ 14) $\cos^{-1}\left[\sin\left(-\frac{\pi}{6}\right)\right]$

Write the trigonometric expression as an algebraic expression in u.

15) $\cos(\tan^{-1}u)$ 16) $\tan(\sin^{-1}u)$

Solve the equation on the interval $0 \leq \theta < 2\pi$.

17) $1 - \sin \theta = \frac{1}{2}$ 18) $4 \sin^2 \theta = 1$ 19) $2 \cos \theta + 2\sqrt{3} = \sqrt{3}$
20) $2 \sin^2 \theta - 3 \sin \theta - 2 = 0$ 21) $\sin^2 \theta + \sin \theta = 0$ 22) $\sin^2 \theta - \cos^2 \theta = 0$

Establish the identity.

23) $\tan \theta \cdot \csc \theta = \sec \theta$ 24) $\tan u(\csc u - \sin u) = \cos u$
25) $\cot^2 x = (\csc x - 1)(\csc x + 1)$ 26) $\csc u - \sin u = \cos u \cot u$ 27) $\frac{1 - \sin t}{\cos t} = \frac{\cos t}{1 + \sin t}$

Find the exact value of the expression.

28) $\sin 15^\circ$ 29) $\sin \frac{11\pi}{12}$
30) $\cos \frac{5\pi}{8} \cos \frac{2\pi}{9} - \sin \frac{5\pi}{8} \sin \frac{2\pi}{9}$ 31) $\frac{\tan 65^\circ + \tan 85^\circ}{1 - \tan 65^\circ \tan 85^\circ}$

Find the exact value under the given conditions.

32) $\sin \alpha = \frac{4}{5}$, $\alpha < \pi$; $\cos \beta = \frac{2}{5}$, $0 < \beta < \frac{\pi}{2}$ Find $\cos(\alpha - \beta)$.
33) $\sin \alpha = \frac{20}{29}$, $\frac{\pi}{2} < \alpha < \pi$; $\cos \beta = \frac{24}{25}$, $0 < \beta < \frac{\pi}{2}$ Find $\sin(\alpha - \beta)$.

Use the information given about the angle θ , $0 \leq \theta \leq 2\pi$, to find the exact value of the indicated trigonometric function.

34) $\cos \theta = \frac{12}{13}$, $\frac{3\pi}{2} < \theta < 2\pi$ Find $\sin(2\theta)$. 35) $\sin \theta = -\frac{4}{5}$, $\frac{3\pi}{2} < \theta < 2\pi$ Find $\cos(2\theta)$.
36) $\tan \theta = 3$, $\pi < \theta < \frac{3\pi}{2}$ Find $\tan \frac{\theta}{2}$. 37) $\sin \theta = \frac{1}{4}$, $\tan \theta > 0$ Find $\cos \frac{\theta}{2}$.

Use the Half-angle Formulas to find the exact value of the trigonometric function.

38) $\cos 22.5^\circ$

Find the value of the expression.

39) $\sin\left[2\cos^{-1}\left(-\frac{3}{5}\right)\right]$