Spiral Test Review: Chapter 5.1-2, 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) $sin^{-1}[\sin\left(-\frac{7}{10}\right)]$

Find the exact value of the expression.

11) $\cos\left[sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$ 12) $\sin\left[cos^{-1}\left(\frac{2}{9}\right)\right]$ 13) $cos^{-1}\left[\cos\left(-\frac{5\pi}{4}\right)\right]$ 14) $\tan\left(cos^{-1}\left(\frac{4}{7}\right)\right)$

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 $0 \le \theta < 2\pi$.

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) $cot^2x = (csc\,x - 1)(csc\,x + 1)$ 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) $sin\ 15°$ 29) $sin\ \frac{11\pi}{12}$ 30) $cos\ \frac{5\pi}{18}\ cos\ \frac{2\pi}{9} - sin\frac{5\pi}{18}\ sin\ \frac{2\pi}{9}$ 31) $\frac{\tan 65° + \tan 85°}{1 - \tan 65°\tan 85°}$

Find the exact value under the given conditions.

32) $sin\,\alpha = \frac{4}{5}$, $\frac{\pi}{2} < \alpha < \pi$; $cos\,\beta = \frac{2}{5}$, $0 < \beta < \frac{\pi}{2}$ 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, $0 \le \theta \le 2\pi$, 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) $cos\ 22.5°$

Find the value of the expression.

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

The function f is one-to-one. Find its inverse.

40.) $y = 2x^2 + 7$