Spiral Test Review: Chapter 5.1-2, 7.1-7.5

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 $sin\ (\alpha - \beta)$.

Find the value of the expression.

34) a) $\sin\left[cos^{-1}\left(-\frac{3}{5}\right)\right]$ b) $\cos\left[sin^{-1}\frac{5}{12} - tan\frac{3}{4}\right]$

35) **Find its inverse.** $y = 2x^2 + 7$. $x \ge 0$

35) **Decide whether the composite functions, f ∘ g and g ∘ f, are equal to x.** $f(x) = x^2 + 1$, $g(x) = \sqrt{x} - 1$