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) $\quad cos^{-1}\frac{\sqrt{3}}{2}$

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) $\quad tan\,(sin^{-1}\,u)$

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) $sin\,\alpha = \frac{4}{5},\ \frac{\pi}{2} < \alpha < \pi;\quad cos\,\beta = \frac{2}{5},\ 0 < \beta < \frac{\pi}{2}$
Find $cos\,(\alpha - \beta)$.

33) $sin\,\alpha = \frac{20}{29},\ \frac{\pi}{2} < \alpha < \pi;\quad cos\,\beta = \frac{24}{25},\ 0 < \beta < \frac{\pi}{2}$
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) $sin\left[2cos^{-1}\left(-\frac{3}{5}\right)\right]$

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

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