

**Test Review**  
**Chapter 5.1-5.2 and 7.1-7.3**

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)  $\sin^{-1}\frac{\sqrt{2}}{2}$                       2)  $\cos^{-1}\frac{\sqrt{2}}{2}$                       3)  $\tan^{-1}\sqrt{3}$   
4)  $\sin^{-1}(0)$                       5)  $\tan^{-1}(0)$

**Use a calculator to find the value of the expression rounded to two decimal places.**

6)  $\cos^{-1}(0.2)$                       7)  $\tan^{-1}(0.2)$

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

8)  $\cos(\cos^{-1}(\frac{1}{2}))$                       9)  $\sin^{-1}\sin(-\frac{\pi}{4})$                       10. a)  $\sin^{-1}(\sin(\frac{7\pi}{6}))$                       b)  $\cos^{-1}(\cos\frac{5\pi}{3})$

**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.**

11)  $\sin(\sin^{-1} 1.8)$

**Find the exact value of the expression.**

12)  $\tan[\cos^{-1}(-\frac{1}{2})]$                       13)  $\cos(\tan^{-1}(\frac{\sqrt{3}}{3}))$                       14)  $\cot[\sin^{-1}(\frac{\sqrt{2}}{2})]$   
15)  $\sin(\tan^{-1}2)$                       16)  $\tan(\cos^{-1}(\frac{2}{9}))$                       17)  $\cos(\sin^{-1}(\frac{3}{5}))$   
18)  $\cos[\sin^{-1}(\frac{4}{2})]$                       19)  $\cos^{-1}(\sin\frac{7\pi}{6})$                       20)  $\sin^{-1}[\sin(\frac{5\pi}{4})]$

**Write the trigonometric expression as an algebraic expression in u.**

21)  $\cos(\sin^{-1}u)$                       22)  $\sin(\tan^{-1}u)$

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

23)  $4\cos^2x - 3 = 0$                       24)  $1 - \sin\theta = \frac{1}{2}$                       25)  $2\cos\theta + 2\sqrt{3} = \sqrt{3}$   
26)  $2\cos\theta + 1 = 0$                       27)  $4\sin^2\theta - 3 = 0$

**Use a calculator to solve the equation on the interval  $0 \leq \theta < 2\pi$ . Round the answer to two decimal places.**

28)  $\cos\theta = 0.75$                       29)  $\sin\theta = 0.33$

**Solve the equation. Give a general formula for all the solutions. AND find solutions on the interval  $0 \leq x < 2\pi$ .**

30) a)  $\sin\theta = 1$                       b)  $\frac{1}{4}\sin 2\theta = \frac{1}{8}$

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

31)  $\cos^2\theta - 1 = 0$                       32)  $\sin^2\theta + \sin\theta = 0$                       33)  $2\cos^2\theta - 3\cos\theta + 1 = 0$   
34)  $2\sin^2\theta = 3(\cos\theta + 1)$

**Use a calculator to solve the equation on the interval  $0 \leq x < 2\pi$ . Round the answer to one decimal place if necessary.**

35)  $2x - 3\cos x = 0$                       36)  $6x - 5\sin x = 2$

**For the given functions f and g, find the requested composite function value.**

37)  $f(x) = 2x + 6$ ,  $g(x) = 4x^2 + 3$ ; Find  $(f \circ f)(3)$                       38)  $f(x) = 3x + 11$ ,  $g(x) = 2x - 1$ ; Find  $(f \circ g)(x)$ .

**Decide whether the composite functions,  $f \circ g$  and  $g \circ f$ , are equal to x.**

39)  $f(x) = \sqrt[5]{x-4}$ ,  $g(x) = x^5 + 4$

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

40)  $f(x) = 2x - 7$