MATH 244/GRACEY
CHAPTER 6.5-6.6 PRACTICE

Name_____

Find the exact value of the real number y.

1) $y = \arcsin\left(-\frac{1}{2}\right)$

2) $y = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

3) $y = \cot^{-1}(1)$

4) $y = \arctan(1)$

5) $y = \arccos\left(\frac{\sqrt{3}}{2}\right)$

Give the degree measure of θ.

6) $\theta = \arccos(1)$

7) $\theta = \cot^{-1}(\sqrt{3})$

8) $\theta = \sec^{-1}(\sqrt{2})$

Use a calculator to give the value in decimal degrees.

9) $\sin^{-1} 0.5423$

10) $\cos^{-1}(-0.3545)$

11) $\tan^{-1} 0.205$

12) $\sec^{-1} 7.246$

13) $\cot^{-1} 5.371$

14) $\tan^{-1} 0.4232$

Use a calculator to give the real number value.

15) $y = \text{arcsec } (2.8842912)$

16) $y = \sin^{-1}(.6561)$

17) $y = \cos^{-1}(-.9397)$

18) $y = \sin^{-1}(-.4848)$

19) $y = \tan^{-1}(.5774)$

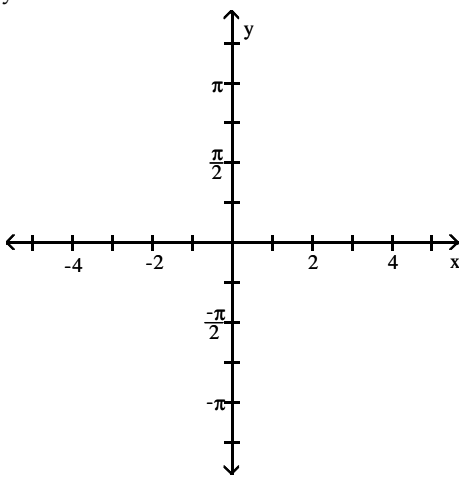
Evaluate the expression exactly.

20) $\cot(\sin^{-1}\frac{6}{10})$

21) $\cos(\arcsin\frac{3}{5} + \arccos\frac{\sqrt{3}}{2})$

Graph the inverse function.

22) $y = \csc^{-1} x$



Evaluate the expression exactly.

23) $\arccos\left(\cos\frac{7\pi}{6}\right)$

24) $\sin(\arctan 2)$

Using a calculator, evaluate the expression.

25) $\sin(\cos^{-1} .8324)$

Write the following as an algebraic expression in u, u > 0.

26) $\tan\left(\text{arcsec}\,\frac{\sqrt{u^2+25}}{u}\right)$

27) $\sin\left(\text{arcsec}\,\frac{\sqrt{u^2+9}}{u}\right)$

Solve the equation exactly over the interval [0, 2π).

28) $\sin^2 x + \sin x = 0$

29) $\sin x = 1 - 2\sin^2 x$

30) $2\sin^2 x = \sin x$

31) $(\tan x + 1)(\sqrt{3}\tan x - 1) = 0$

Using a calculator, evaluate the expression.

32) $\cos^{-1}(\cos(-.9372))$

Solve the equation exactly over the interval [0,360°).

33) $3\sin^2\theta - \sin\theta - 4 = 0$

34) $2\cot^2\theta\cos\theta + \cot^2\theta = 0$

35) $\csc\theta = 1 + \cot\theta$

36) $(\tan\theta + 1)(2\cos\theta - 1) = 0$

Determine all solutions in radians. Let n represent any integer in all solutions.

37) $4\sin^2 x - 1 = 0$

38) $\cos^2 x + 2\cos x = -1$

39) $\cos^2 x - 1 = 0$

40) $2\sin^2 x + \sin x = 1$

Solve the equation exactly over the interval [0, 2π).

41) $\sin 4x = \frac{\sqrt{3}}{2}$

42) $\sin x \cos x = \frac{1}{2}$

43) $\tan 2x - \tan x = 0$

44) $\csc 3x = 0$

45) $\sin^2 2x = 1$

46) $\sqrt{2}\cos 2x = 1$

Solve the equation exactly over the interval [0,360°).

47) $\sin 2\theta + \sin \theta = 0$

48) $\sqrt{3}\sec 2\theta = 2$

49) $\cot \frac{\theta}{3} = 1$

Solve the equation for x.

50) $y = 7 \sin x$

51) $y = 8 \cos 3x$

52) $y = 4 \cot \frac{x}{2}$

53) $y = -\sec \frac{x}{4}$

54) $y = 3 \tan 2x - 1$

55) $y = \sin x - \pi$

Solve the equation exactly.

56) $6 \arcsin x = \pi$

57) $\arcsin x = \arccos \frac{3}{5}$

58) $\arcsin x + \arccos \left(\frac{-1}{2}\right) = \pi$

1) $-\frac{\pi}{6}$

2) $-\frac{\pi}{4}$

3) $\frac{\pi}{4}$

4) $\frac{\pi}{4}$

5) $\frac{\pi}{6}$

6) 0°

7) 30°

8) 45°

9) $\theta = 32.84°$

10) $\theta = 110.76°$

11) $\theta = 11.59°$

12) $\theta = 82.07°$

13) $\theta = 10.55°$

14) $\theta = 22.94°$

15) 1.2167397

16) .715639280

17) 2.79254838

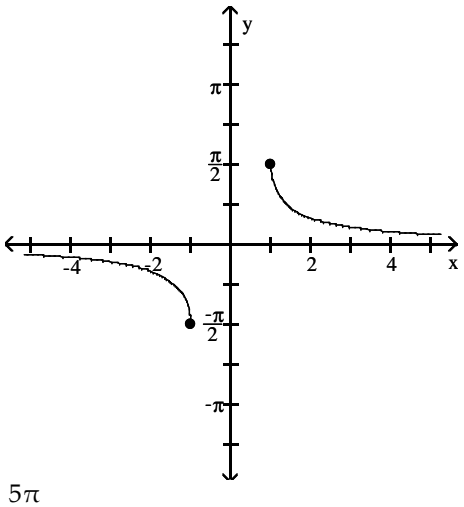
18) –.50613448

19) .52363607

20) $\frac{8}{6}$

21) $\frac{4\sqrt{3}-3}{10}$

22)



23) $\frac{5\pi}{6}$

24) $\frac{2\sqrt{5}}{5}$

25) .5542

26) $\frac{5}{u}$

27) $\frac{3\sqrt{u^2+9}}{u^2+9}$

28) $\left\{0, \pi, \frac{3\pi}{2}\right\}$

29) $\left\{\frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}\right\}$

30) $\left\{0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}\right\}$

31) $\left\{\frac{\pi}{6}, \frac{3\pi}{4}, \frac{7\pi}{6}, \frac{7\pi}{4}\right\}$

32) .9372

33) {270°}

34) {90°, 120°, 240°, 270°}

35) {90°}

36) {60°, 135°, 300°, 315°}

37) $\frac{\pi}{6} + n\pi, \frac{5\pi}{6} + n\pi$

38) $\pi + 2n\pi$

39) $n\pi$

40) $\frac{\pi}{6} + 2n\pi, \frac{5\pi}{6} + 2n\pi, \frac{3\pi}{2} + 2n\pi$

41) $\left\{\frac{\pi}{12}, \frac{\pi}{6}, \frac{2\pi}{3}, \frac{7\pi}{12}, \frac{7\pi}{6}, \frac{13\pi}{12}, \frac{5\pi}{3}, \frac{19\pi}{12}\right\}$

42) $\left\{\frac{\pi}{4}, \frac{5\pi}{4}\right\}$

43) $\{0, \pi\}$

44) $\emptyset$

45) $\left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$

46) $\left\{\frac{\pi}{8}, \frac{9\pi}{8}, \frac{7\pi}{8}, \frac{15\pi}{8}\right\}$

47) {0°, 120°, 180°, 240°}

48) {15°, 165°, 195°, 345°}

49) {135°}

50) $x = \arcsin\frac{y}{7}$

51) $x = \frac{1}{3}\arccos\frac{y}{8}$

52) $x = 2\,\text{arccot}\frac{y}{4}$

53) $x = 4\,\text{arcsec}(-y)$

54) $x = \frac{1}{2}\arctan\frac{y+1}{3}$

55) $x = \arcsin(y + \pi)$

56) $\left\{\frac{1}{2}\right\}$

57) $\left\{\frac{4}{5}\right\}$

58) $\left\{\frac{\sqrt{3}}{2}\right\}$