



3. (a) Convert  $8\pi/9$  radians to degrees.

(b) Convert  $-405^\circ$  to radians.

4. Find the exact value of the given trigonometric expression.

(a)  $\sin -5\pi/6$

(d)  $\csc -25\pi/4$

(b)  $\cos 120^\circ$

(e)  $\sec 150^\circ$

(c)  $\tan -60^\circ$

(f)  $\cot 3\pi/2$

5. Recall the following Pythagorean identities.

$$\sin^2 x + \cos^2 x = 1, \quad \tan^2 x + 1 = \sec^2 x, \quad 1 + \cot^2 x = \csc^2 x$$

(a) Write  $\sin t$  in terms of  $\cos t$ , where  $t$  terminate in quadrant III.

(b) Write  $\cos t$  in terms of  $\tan t$ , where  $t$  terminate in quadrant IV.

6. Solve each of the following systems of equations. If no solution exists, write *no solution*. If there are an infinite number of solutions, enter the general solution in terms of  $t$ , where  $t$  is any real number.

$$(a) \begin{cases} 2x - 6y = 10 \\ -3x + 9y = -15 \end{cases}$$

$$(b) \begin{cases} \frac{3}{2}x - \frac{1}{3}y = \frac{1}{2} \\ 2x - \frac{1}{2}y = -\frac{1}{2} \end{cases}$$

7. Solve each of the following systems of equations. If no solution exists, write *no solution*. If there are an infinite number of solutions, enter the general solution in terms of  $t$ , where  $t$  is any real number.

$$(a) \begin{cases} x & & -4z & = & 1 \\ 2x & -y & -6z & = & 4 \\ 2x & +3y & -2z & = & 8 \end{cases}$$

$$(b) \begin{cases} x & +2y & -z & = & 1 \\ 2x & +3y & -4z & = & -3 \\ 3x & +6y & -3z & = & 4 \end{cases}$$