

PPP Solutions

$$1a) \cos 240^\circ = -\frac{1}{2}$$

$$b) \sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2}$$

$$c) \csc 60^\circ = \frac{2\sqrt{3}}{3}$$

$$d) \sec\left(-\frac{5\pi}{4}\right) = \sec\frac{3\pi}{4} = -\sqrt{2} \quad -\frac{5\pi}{4} + \frac{8\pi}{4} = \frac{3\pi}{4}$$

$$e) \cot\left(\frac{11\pi}{6}\right) = -\sqrt{3}$$

$$f) \sec \frac{7\pi}{4} = \sqrt{2}$$

$$g) \tan 390^\circ = \tan 30^\circ = \frac{\sqrt{3}}{3} \quad 390 - 360 = 30$$

$$h) \cos \frac{23\pi}{6} = \cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$$

$$\frac{23\pi}{6} - \frac{12\pi}{6} = \frac{11\pi}{6}$$

$$i) \sin(-13\pi) = \sin \pi = 0$$

$$-13\pi + (2\pi) \cdot 7 = -13\pi + 14\pi = \pi$$

$$j) \csc 45^\circ - \cos 60^\circ = \sqrt{2} - \frac{1}{2}$$

$$k) -3 \sin \frac{5\pi}{2} = -3 \cdot \frac{1}{2} = -\frac{3}{2}$$

$$2) \begin{array}{l} (-4, -3) \\ x = -4 \\ y = -3 \\ r = 5 \end{array} \quad \begin{array}{l} \sin \theta = -\frac{3}{5} \\ \cos \theta = -\frac{4}{5} \\ \tan \theta = \frac{3}{4} \end{array} \quad \begin{array}{l} \csc \theta = -\frac{5}{3} \\ \sec \theta = -\frac{5}{4} \\ \cot \theta = \frac{4}{3} \end{array}$$

$$3) \text{ If } \sec \theta = \frac{25}{7} \text{ and } \frac{3\pi}{2} < \theta < 2\pi$$

QIV so $y < 0$

$$r = 25$$

$$x = 7$$

$$y = -24$$

$$\sin \theta = -\frac{24}{25}$$

$$\cos \theta = \frac{7}{25}$$

$$\tan \theta = -\frac{24}{7}$$

$$\csc \theta = -\frac{25}{24}$$

$$\cot \theta = -\frac{7}{24}$$

$$4) \csc \theta = -\frac{41}{40}, \cos \theta > 0$$

$\csc \theta < 0, \cos \theta > 0$ QIV so $x > 0, y < 0$

$$r = 41$$

$$y = -40$$

$$x = 9$$

$$\sin \theta = -\frac{40}{41}$$

$$\cos \theta = \frac{9}{41}$$

$$\tan \theta = -\frac{40}{9}$$

$$\sec \theta = \frac{41}{9}$$

$$\cot \theta = -\frac{9}{40}$$

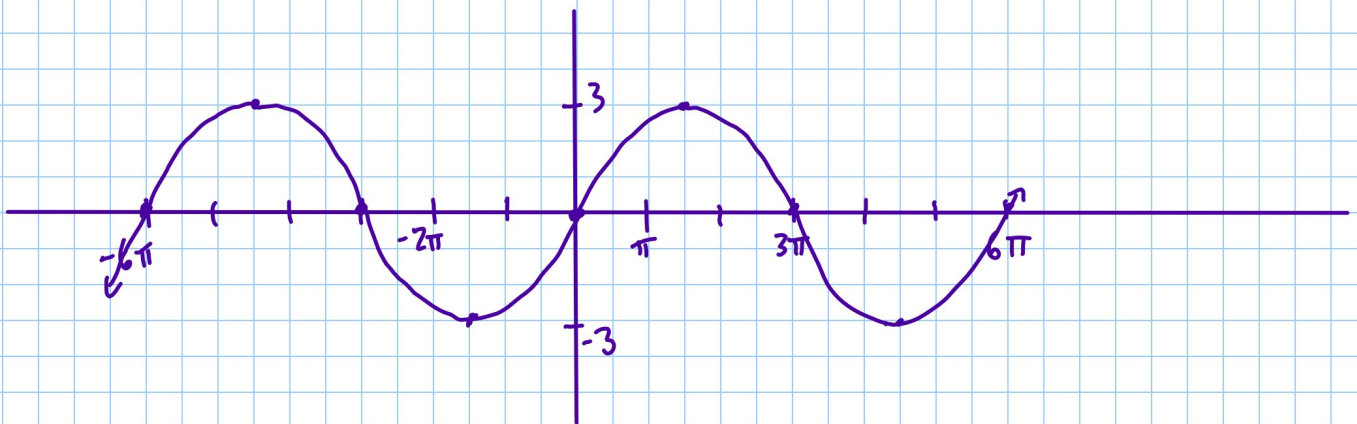
$$5a) y = 3 \sin\left(\frac{1}{3}x\right)$$

$$(0, 0), \left(\frac{3\pi}{2}, 3\right), (3\pi, 0), \left(\frac{9\pi}{2}, -3\right), (6\pi, 0)$$

$$\text{amp} = 3$$

$$\text{period} = \frac{2\pi}{\frac{1}{3}} = 2\pi \cdot 3 = 6\pi$$

$$\text{P.S.} = 0$$



$$5) y = 2 \cos\left(\frac{\pi}{4}x + \pi\right)$$

$$a = 2$$

$$\phi = -\pi$$

$$(-4, 2), (-2, 0), (0, -2), (2, 0), (4, 2)$$

$$\text{Period} = \frac{2\pi}{\frac{\pi}{4}} = 2\pi \cdot \frac{4}{\pi} = 8$$

$$\text{P.S.} = \frac{-\pi}{\frac{\pi}{4}} = -\pi \cdot \frac{4}{\pi} = -4$$

