

$$[2] [a] 6$$

$$[b] A$$

$$[c] -\frac{2\pi}{3}$$

$$[d] \frac{7\pi}{6}$$

$$[3] [a] (9, \frac{4\pi}{7}) (-9, \frac{11\pi}{7})$$

$$[b] (9, -\frac{5\pi}{8}) (-9, -\frac{13\pi}{8})$$

$$[4] [a] (-8 \cos(-\frac{7\pi}{4}), -8 \sin(-\frac{7\pi}{4})) = (-8(\frac{\sqrt{2}}{2}), -8(\frac{\sqrt{2}}{2})) = (-4\sqrt{2}, -4\sqrt{2})$$

$$[b] r = \sqrt{(-4\sqrt{2})^2 + (-4\sqrt{2})^2} = \sqrt{32 + 32} = \sqrt{64} = 4\sqrt{2}$$

$$\tan \theta = \frac{-4\sqrt{2}}{-4\sqrt{2}} = 1 \rightarrow \theta_{\text{ref}} = \frac{\pi}{4}$$

$$\text{POINT IN } Q_3 \rightarrow \theta = \pi + \frac{\pi}{4} = \frac{5\pi}{4} \quad (4\sqrt{2}, \frac{5\pi}{4})$$

$$[c] r = 2 - (\cos^2 \theta - \sin^2 \theta)$$

$$r = 2 - (\frac{x^2}{r^2} - \frac{y^2}{r^2})$$

$$r^3 = 2r^2 - x^2 + y^2$$

$$\sqrt{x^2 + y^2}^3 = 2(x^2 + y^2) - x^2 + y^2 = x^2 + 3y^2$$

$$(x^2 + y^2)^3 = (x^2 + 3y^2)^2$$

$$[d] r \cos \theta = r^2 \sin^2 \theta + 2r \sin \theta$$

$$r(\cos \theta - 2 \sin \theta) = r^2 \sin^2 \theta$$

$$r = \frac{\cos \theta - 2 \sin \theta}{\sin^2 \theta} = \csc \theta \cot \theta - 2 \csc \theta$$