

(a) $x = 6$ and $y = -6 \Rightarrow r = \sqrt{6^2 + (-6)^2} = 6\sqrt{2}$ and
 $\theta = \tan^{-1}\left(\frac{-6}{6}\right) = -\frac{\pi}{4}$. Since $(6, -6)$ is in the fourth quadrant, the polar coordinates are (i) $(6\sqrt{2}, \frac{7\pi}{4})$ and (ii) $(-6\sqrt{2}, \frac{3\pi}{4})$.

(b) $x = -1$ and $y = \sqrt{3} \Rightarrow r = \sqrt{(-1)^2 + (\sqrt{3})^2} = 2$ and
 $\theta = \tan^{-1}\left(\frac{\sqrt{3}}{-1}\right) = \frac{2\pi}{3}$. Since $(-1, \sqrt{3})$ is in the second quadrant, the polar coordinates are (i) $(2, \frac{2\pi}{3})$ and (ii) $(-2, \frac{5\pi}{3})$.