

12.  $(-6, -6)$   
 $\begin{matrix} x & y \end{matrix}$

①  $r = \sqrt{x^2 + y^2}$

$r = \sqrt{(-6)^2 + (-6)^2}$

$r = \sqrt{36 + 36}$

$r = \sqrt{72}$

$r = \sqrt{6 \cdot 6 \cdot 2}$

$r = 6\sqrt{2}$

②  $\cos A = \frac{x}{r} = \frac{-6}{6\sqrt{2}} = \frac{-1}{\sqrt{2}} = \frac{-\sqrt{2}}{2}$

$\sin A = \frac{y}{r} = \frac{-6}{6\sqrt{2}} = \frac{-\sqrt{2}}{2}$

$(\frac{-\sqrt{2}}{2}, \frac{-\sqrt{2}}{2})$

so  $\theta = \frac{5\pi}{4}$

$(6\sqrt{2}, \frac{5\pi}{4})$

13.  $(3, -3\sqrt{3})$   
 $\begin{matrix} x & y \end{matrix}$

①  $r = \sqrt{x^2 + y^2}$

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

$r = \sqrt{9 + (-3)^2(\sqrt{3})^2}$

$r = \sqrt{9 + 9(3)}$

$r = \sqrt{9 + 27}$

$r = \sqrt{36}$

$r = 6$

②  $\cos \theta = \frac{x}{r} = \frac{3}{6} = \frac{1}{2}$

$\sin \theta = \frac{y}{r} = \frac{-3\sqrt{3}}{6} = \frac{-\sqrt{3}}{2}$

$(\frac{1}{2}, \frac{-\sqrt{3}}{2})$

so  $\theta = \frac{5\pi}{3}$

$(6, \frac{5\pi}{3})$