極座標が次のような点の直交座標を求めよ。

(1) $\left(3\sqrt{2}, \dfrac{\pi}{4}\right)$

(2) $\left(2, \dfrac{4}{3}\pi\right)$

(3) $(-3, \pi)$
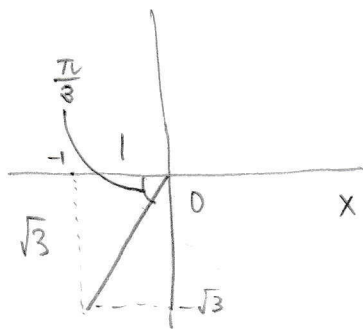
(1)
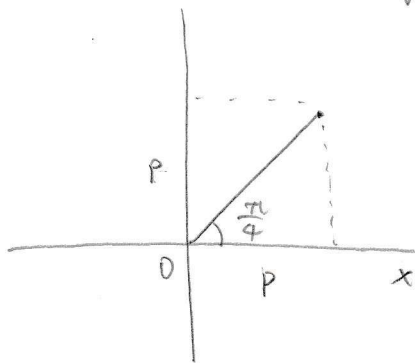
$\sqrt{P^2 + P^2} = 3\sqrt{2}$

$2P^2 = 18$

$P^2 = 9$

$P = \mp 3 \qquad P > 0 \text{ より}$

$\underline{(3, 3)}$

(2)

$\dfrac{4}{3}\pi - \pi = \dfrac{\pi}{3}$

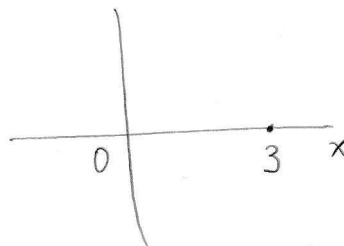$\underline{(-1, -\sqrt{3})}$

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

$\sqrt{4P^2} = 2 \qquad 2P = 2$

$\qquad\qquad\qquad P = 1$

(3) $(-3, \pi) = (3, \pi + \pi)$

$\qquad\qquad = (3, 2\pi)$

$\underline{(3, 0)}$