

$$x = 12 \quad y = -9$$

$$r = \sqrt{x^2 + y^2}$$

$$r = \sqrt{12^2 + (-9)^2} = \sqrt{225}$$

$$r = 15$$

$$\sin \theta = \frac{-9}{15} = \boxed{\frac{-3}{5}}$$

$$\cos \theta = \frac{12}{15} = \boxed{\frac{4}{5}}$$

$$\tan \theta = \frac{-9}{12} = \boxed{\frac{-3}{4}}$$

p. 73 # 1-3

p. 70 Ex. 2

$$\ominus R = 180^\circ - 120^\circ = 60^\circ$$

$$\sin 60^\circ = \sqrt{3}/2$$

$$\cos 60^\circ = 1/2$$

$$\tan 60^\circ = \sqrt{3}$$

→ #  $\left\{ \begin{array}{l} \sin \theta \oplus \\ \cos \theta \ominus \\ \tan \theta = \frac{y}{x} = \frac{\pm}{\mp} \ominus \end{array} \right.$

$$\sin 120^\circ = \sqrt{3}/2$$

$$\cos 120^\circ = -1/2$$

$$\begin{aligned}\tan 120^\circ &= -\tan 60^\circ \\ &= -\sqrt{3}\end{aligned}$$

p. 74 #4

$$\text{p. 70 Ex. 3} \quad \cos \theta = \frac{\sqrt{33}}{7}$$

$$x = \sqrt{33} \quad r = 7$$

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

$$y^2 = 7^2 - \sqrt{33}^2 = 49 - 33$$

$$y^2 = 16$$

$$y = \pm 4 \rightarrow \boxed{y = -4} \text{ IV}$$

$$\sin \theta = \frac{y}{r} = \frac{-4}{7}$$

$$\tan \theta = \frac{y}{x} = \frac{-4}{\sqrt{33}}$$

p. 76 # 5-7

p. 71  $\boxed{\text{Ex. 4}}$

a)  $\oplus$  I, III

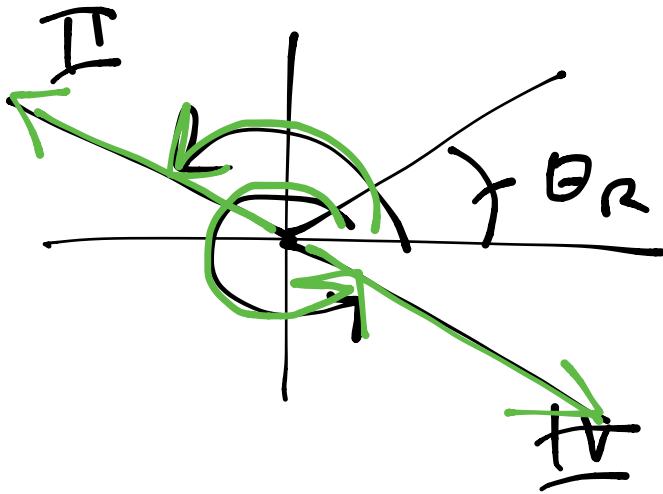
$\ominus$  II, IV

$\boxed{\text{Step 1}}$

$$\theta_R = \tan^{-1}(0.9004) \quad \boxed{\text{Step 2}}$$

$$\theta_R = 42.0^\circ \quad \textcircled{\text{IV}}$$

Step 3



$$\text{II: } \theta = 180^\circ - 42^\circ \\ = \boxed{138^\circ}$$

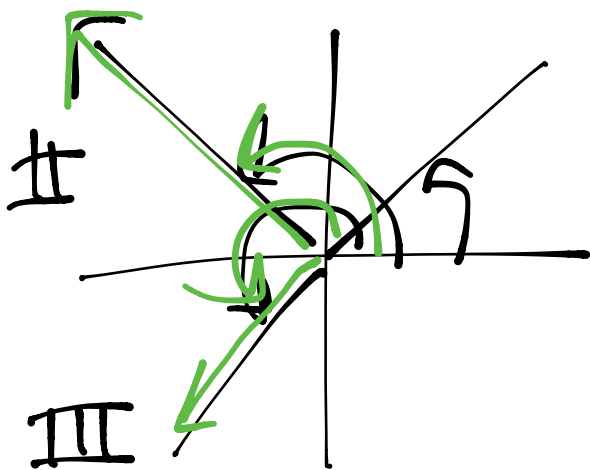
$$\text{IV: } \theta = 360^\circ - 42^\circ \\ = \boxed{318^\circ}$$

b)  $\oplus$  I, IV (1)

$\ominus$  II, III

$$\theta = \cos^{-1}\left(\frac{1}{\sqrt{2}}\right) \quad (2)$$

$$\theta_R = 45^\circ$$



(3)

II:

$$\begin{aligned} \theta &= 180^\circ - 45^\circ \\ &= \boxed{135^\circ} \end{aligned}$$

$$\begin{aligned} \text{III: } \theta &= 180^\circ + 45^\circ \\ &= \boxed{225^\circ} \end{aligned}$$

$\rho \cdot r \neq r$