

42. (cont.)

$$2 \cos \theta \sin \theta = -\frac{5}{9}$$

$$\sin 2\theta = -\frac{5}{9}$$

$$\begin{cases} \cos \theta + \sin \theta = \frac{1+\sqrt{3}}{2} & (*) \\ \cos \theta - \sin \theta = \frac{1-\sqrt{3}}{2} & (**) \end{cases}$$

(*) + (**):

$$2 \cos \theta = \frac{1+\sqrt{3}}{2} + \frac{1-\sqrt{3}}{2}$$

$$2 \cos \theta = 1$$

$$\| \cos \theta = \frac{1}{2} \|$$

(*) - (**):

$$\begin{aligned} 2 \sin \theta &= \frac{1+\sqrt{3}}{2} - \frac{1-\sqrt{3}}{2} \\ &= \sqrt{3} \end{aligned}$$

$$\therefore \| \sin \theta = \frac{\sqrt{3}}{2} \|$$

Dari $\sin 2\theta = 2 \sin \theta \cos \theta$

$$= 2 \cdot \frac{\sqrt{3}}{2} \cdot \frac{1}{2}$$

$$\therefore \sin 2\theta = \frac{\sqrt{3}}{2}$$

$$\begin{cases} 2a + b = \frac{\pi}{2} \end{cases}$$

$$2a = \frac{\pi}{2} - b$$

$$\cos 2a = \cos \left(\frac{\pi}{2} - b \right)$$

$$\cos^2 a - \sin^2 a = \sin b$$

$$\cos^2 a - (1 - \cos^2 a) = \sin b$$

$$2 \cos^2 a - 1 = \sin b$$

$$2 \cos^2 a = 1 + \sin b$$

$$\cos a = \pm \sqrt{\frac{1 + \sin b}{2}}$$

$$\begin{cases} \operatorname{tg} a = \frac{1}{5} \\ \operatorname{tg} b = \frac{1}{239} \end{cases}$$

$$\operatorname{tg}(4a - b) = \frac{\operatorname{tg} 4a - \operatorname{tg} b}{1 - (\operatorname{tg} 4a)(\operatorname{tg} b)}$$

Maka

$$\operatorname{tg} 2a = \frac{2 \operatorname{tg} a}{1 - (\operatorname{tg} a)^2} = \frac{2 \cdot \frac{1}{5}}{1 - \left(\frac{1}{5}\right)^2}$$

$$= \frac{\frac{2}{5}}{\frac{1 - \frac{1}{25}}{25}} = \frac{\frac{2}{5}}{\frac{24}{25}}$$

$$\| \operatorname{tg} 2a = \frac{10}{24} \| \rightarrow$$