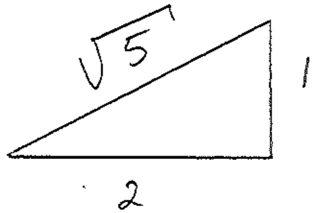
RP. 87e)

$$\tan v = \frac{1}{2}$$



$$\begin{cases} \sin v = 1/\sqrt{5} \\ \cos v = 2/\sqrt{5} \end{cases}$$

RP. 88g)

$$v = -10000^\circ$$

$$\Leftrightarrow \; -10000^\circ + 360^\circ \cdot 30$$

$$= -10000^\circ + 10800^\circ$$

$$= 800^\circ \Leftrightarrow 800^\circ - 360^\circ \cdot 2$$

$$= 800^\circ - 720^\circ = 80^\circ \in (0, 90^\circ)$$

$\therefore$ I första kvadranten

RP. 93b)

$$\cos v = 0.3$$

$$\Rightarrow \sin v = \pm\sqrt{1 - 0.3^2} =$$

$$= (-)\sqrt{0.91} < 0,$$

ty 4:e kvadranten

$$\Rightarrow \tan v = \frac{-\sqrt{0.91}}{0.3} = \frac{-\sqrt{91}}{3}$$

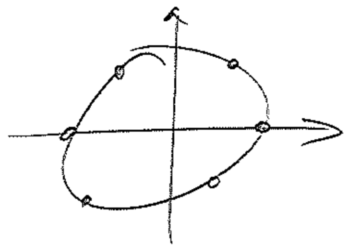
RP. 97b)

$$\sin 3v = \sin v$$

$$\Rightarrow \begin{cases} 3v = v + 2\pi n \\ 3v = \pi - v + 2\pi n \end{cases}$$

$$\begin{cases} 2v = 2\pi n \\ 4v = \pi + 2\pi n \end{cases}$$

$$\begin{cases} v = \pi n \\ v = \pi/4 + \frac{\pi}{2} n \end{cases}$$



RP. 108 b)

$$\cos(u+v) = \cos u \cdot \cos v - \sin u \cdot \sin v$$

$$\cos u = 0.8$$
$$\cos v = 0.6$$
$$\sin u = -\sqrt{1-0.8^2} = -\sqrt{0.36} = -0.6 \quad \text{(4:e kvadranten)}$$
$$\sin v = \sqrt{1-0.6^2} = \sqrt{0.64} = 0.8$$

$$\Rightarrow \cos(u+v) = 0.8 \cdot 0.6 - (-0.6) \cdot 0.8 = 0.48 + 0.48 = \underline{\underline{0.96}}$$

RP. 112 b) $\sin v - \sqrt{3}\cos v = 1$

Skriv på formen $c \cdot \sin(v+\alpha)$

$$c \cdot \sin(v+\alpha) = c \cdot (\sin v \cdot \cos\alpha + \cos v \cdot \sin\alpha)$$
$$= \underbrace{c \cdot \cos\alpha}_{=1} \cdot \sin v + \underbrace{c \cdot \sin\alpha}_{=-\sqrt{3}} \cdot \cos v$$

$$\left.\begin{array}{l} c \cdot \cos\alpha = 1 \\ c \cdot \sin\alpha = -\sqrt{3} \end{array}\right\} \Rightarrow \tan\alpha = \frac{\sin\alpha}{\cos\alpha} = -\sqrt{3} \Rightarrow \alpha = -\pi/3 \, (+\pi n)$$

$$\Rightarrow c = 1/\cos(-\pi/3) = 1/(1/2) = 2$$

$\therefore$ Lös ekvationen $2 \cdot \sin(v - \pi/3) = 1$

$$2\sin(v-\pi/3)=1$$

$$\sin(v-\pi/3)=1/2$$

$$v-\pi/3=\begin{cases}\pi/6+2\pi n\\ \pi-\pi/6+2\pi n\end{cases}$$

$$v=\begin{cases}\pi/6+\pi/3+2\pi n\\ 5\pi/6+\pi/3+2\pi n\end{cases}$$

$$\underline{\underline{v=\begin{cases}\pi/2+2\pi n\\ 7\pi/6+2\pi n\end{cases}}}$$

Alternativ lösning: $\sin v-\sqrt{3}\cos v=1$

$$\sin v=1+\sqrt{3}\cos v$$

Kvadrering kan introducera falska rötter

$$\longrightarrow \sin^2 v=1+3\cos^2 v+2\sqrt{3}\cos v$$

$$\cancel{1}-\cos^2 v=\cancel{1}+3\cos^2 v+2\sqrt{3}\cos v$$

$$^{2}\cancel{4}\cos^2 v+\cancel{2}\sqrt{3}\cos v=0$$

$$\cos v\cdot(2\cos v+\sqrt{3})=0$$

Falska rötter elimineras genom insättning i (*)

$$\Rightarrow\begin{cases}\cos v=0\\ \cos v=-\sqrt{3}/2\end{cases}$$

$$\Rightarrow\begin{cases}v=(\pm)\frac{\pi}{2}+2\pi n\\ v=(\pm)5\pi/6+2\pi n\end{cases}$$

RP.113d) $\cos 2v=\cos^2 v$

$$\cos 2v=\cos^2 v-\sin^2 v$$
$$=2\cos^2 v-1$$

$$2\cos^2 v-1=\cos^2 v$$

$$\cos^2 v=1$$

$$\cos v=\pm 1$$

$$\underline{\underline{v=\pi\cdot n}}$$