

$$c) \operatorname{tg} 22.5^\circ$$

$$\operatorname{tg} 45^\circ = \operatorname{tg} 2 \times 22.5^\circ$$

$$1 = \frac{2 \operatorname{tg} 22.5^\circ}{1 - \operatorname{tg}^2 22.5^\circ}$$

$$1 - \operatorname{tg}^2 22.5^\circ = 2 \operatorname{tg} 22.5^\circ$$

$$\operatorname{tg}^2 22.5^\circ + 2 \operatorname{tg} 22.5^\circ - 1 = 0$$

$$x^2 + 2x - 1 = 0$$

$$(\text{Molok}) : x = \operatorname{tg} 22.5^\circ$$

$$x = \frac{-2 \pm \sqrt{4 + 4}}{2}$$

$$x = \frac{-2 \pm \sqrt{8}}{2}$$

$$x = \frac{-2 \pm 2\sqrt{2}}{2}$$

$$\operatorname{tg} 22.5^\circ = -1 \pm \sqrt{2} \geq 0$$

$$\boxed{\operatorname{tg} 22.5^\circ = \sqrt{2} - 1}$$

$$d) \sin\left(-\frac{\pi}{8}\right) = -\sin\frac{\pi}{8}$$

$$\sin\frac{\pi}{4} = \sin 2\frac{\pi}{8}$$

$$\frac{\sqrt{2}}{2} = 2 \sin\frac{\pi}{8} \cos\frac{\pi}{8} \quad (*)$$

$$\frac{\sqrt{2}}{4} = \sin\frac{\pi}{8} \sqrt{1 - \sin^2\frac{\pi}{8}}$$

$$\frac{2}{16} = \sin^2\frac{\pi}{8} (1 - \sin^2\frac{\pi}{8})$$

$$\frac{1}{8} = \sin^2\frac{\pi}{8} - \sin^4\frac{\pi}{8}$$

$$\sin^4\frac{\pi}{8} - \sin^2\frac{\pi}{8} + \frac{1}{8} = 0$$

keja

$$x = \sin^2\frac{\pi}{8}$$

Dari

$$x^2 - x + \frac{1}{8} = 0$$

$$x = \frac{1 \pm \sqrt{1 - \frac{4}{8}}}{2}$$

$$x = \left(1 \pm \sqrt{\frac{1}{2}}\right) / 2$$

$$\sin^2\frac{\pi}{8} = \frac{1 \pm \frac{1}{\sqrt{2}}}{2}$$

$$\sin\frac{\pi}{8} = \sqrt{\frac{1 \pm \frac{1}{\sqrt{2}}}{2}}$$