

ESPRESIONI GONIOMETRICHE ESERCIZI SVOLTI

1)

$$\begin{aligned}
& 2\operatorname{sen} 140^\circ - \operatorname{cos} 315^\circ + 2\operatorname{sen} 220^\circ + 3\operatorname{cos} 225^\circ = \\
& = 2\operatorname{sen} (180^\circ - 40^\circ) - \operatorname{cos} (360^\circ - 45^\circ) + 2\operatorname{sen} (180^\circ + 40^\circ) + 3\operatorname{cos} (180^\circ + 45^\circ) = \\
& = 2\operatorname{sen} 40^\circ - \operatorname{cos} 45^\circ - 2\operatorname{sen} 40^\circ - 3\operatorname{cos} 45^\circ = \\
& = -4\operatorname{cos} 45^\circ = \\
& = -4 \frac{\sqrt{2}}{2} = -2\sqrt{2}
\end{aligned}$$

2)

$$\begin{aligned}
& \operatorname{sen} 240^\circ + \operatorname{cos}(-60^\circ) + 2\operatorname{sen} 120^\circ + \operatorname{cos} 210^\circ = \\
& = \operatorname{sen} (180^\circ + 60^\circ) + \operatorname{cos} 60^\circ + 2\operatorname{sen}(180^\circ - 60^\circ) + \operatorname{cos} (270^\circ - 60^\circ) = \\
& = -\operatorname{sen} 60^\circ + \operatorname{cos} 60^\circ + 2\operatorname{sen} 60^\circ - \operatorname{sen} 60^\circ = \\
& = \operatorname{cos} 60^\circ = \frac{1}{2}
\end{aligned}$$

3)

$$\begin{aligned}
& \left(\operatorname{sen} \alpha - \operatorname{sen} \frac{\pi}{3}\right) \left(\operatorname{sen} \alpha + \operatorname{sen} \frac{\pi}{3}\right) + \operatorname{cos}^2 \alpha = \\
& = \left(\operatorname{sen} \alpha - \frac{\sqrt{3}}{2}\right) \left(\operatorname{sen} \alpha + \frac{\sqrt{3}}{2}\right) + \operatorname{cos}^2 \alpha = \\
& = \operatorname{sen}^2 \alpha - \frac{3}{4} + \operatorname{cos}^2 \alpha = \\
& = 1 - \frac{3}{4} = \frac{1}{4}
\end{aligned}$$

4)

$$\begin{aligned}
& \left(\operatorname{sen} \frac{\pi}{3} + \operatorname{cos} \frac{\pi}{6}\right) \left(\operatorname{sen} \frac{5}{6}\pi + \operatorname{cos} \frac{\pi}{3}\right) = \\
& = \left(\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2}\right) \left(\frac{1}{2} + \frac{1}{2}\right) = \\
& = \sqrt{3} \times 1 = \sqrt{3}
\end{aligned}$$

5)

$$\begin{aligned}
& \left[\operatorname{sen} \left(\frac{\pi}{2} - \alpha\right) + \operatorname{sen} \alpha\right]^2 + 2\operatorname{sen}(-\alpha)\operatorname{cos}(-\alpha) = \\
& = [\operatorname{cos} \alpha + \operatorname{sen} \alpha]^2 - 2\operatorname{sen} \alpha \operatorname{cos} \alpha = \\
& = \operatorname{cos}^2 \alpha + \operatorname{sen}^2 \alpha + 2\operatorname{sen} \alpha \operatorname{cos} \alpha - 2\operatorname{sen} \alpha \operatorname{cos} \alpha = 1
\end{aligned}$$

6)

$$\begin{aligned}
& \left(\operatorname{sen} \frac{3}{4}\pi + \operatorname{cos} \frac{\pi}{4}\right)^2 + \left[\operatorname{sen} \left(-\frac{\pi}{4}\right) + \operatorname{cos} \frac{11}{4}\pi\right]^2 = \\
& = \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right)^2 + \left[-\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right]^2 = \\
& = \sqrt{2}^2 + (-\sqrt{2})^2 = 2 + 2 = 4
\end{aligned}$$