

EX: Rationalize $\frac{3 + j1.5}{5 - j2.6}$

ANS: $0.35 + j0.48$

SOL'N: Multiply the numerator and denominator by the denominator's complex conjugate. This turns the denominator into a real number equal to the magnitude squared of the original denominator.

$$\begin{aligned}\frac{3 + j1.5}{5 - j2.6} &= \frac{3 + j1.5}{5 - j2.6} \frac{5 + j2.6}{5 + j2.6} \\ &= \frac{(3 + j1.5)(5 + j2.6)}{5^2 + 2.6^2} \\ &= \frac{15 - 3.9 + j(7.8 + 7.5)}{31.76} \\ &= 0.35 + j0.48\end{aligned}$$