$\dfrac{5+3i}{4-2i}$ modulus & Amplitude

$\dfrac{5+3i}{4-2i} \times \dfrac{4+2i}{4+2i}$

$z = \dfrac{20+10i+12i+6i^2}{4^2-2^2 i^2}$

$= \dfrac{20+22i-6}{16+4}$

$= \dfrac{14+22i}{20}$

$= \dfrac{14}{20} + \dfrac{22}{20}i$

$= \dfrac{7}{10} + \dfrac{11}{10}i$ //

$|z| = \sqrt{\left(\dfrac{7}{10}\right)^2 + \left(\dfrac{12}{10}\right)^2}$

$|z| = \cancel{\dfrac{\sqrt{170}}{10}} \quad \dfrac{\sqrt{170}}{10}$ //

$Amp\,z = \tan^{-1}\left(\dfrac{\frac{11}{10}}{\frac{7}{10}}\right)$

$\tan^{-1}\left(11/7\right)$ //