

$$\frac{1}{(2+i)^2} - \frac{1}{(2-i)^2} \quad \text{a+b}$$

$$\frac{1}{4+i^2+4i} - \frac{1}{4+i^2-4i}$$

$$= \frac{1}{4-1+4i} - \frac{1}{4-1-4i}$$

$$= \frac{1}{3+4i} - \frac{1}{3-4i}$$

$$= \frac{1}{3+4i} \times \frac{3-4i}{3-4i} - \frac{1}{3-4i} \times \frac{3+4i}{3+4i}$$

$$= \frac{3-4i}{3^2-4^2i^2} - \frac{3+4i}{3^2-4^2i^2}$$

$$= \frac{3-4i}{9+16} - \frac{(3+4i)}{9+16}$$

$$= \frac{3-4i-3-4i}{25}$$

$$= -\frac{8i}{25}$$

real amplitude,
modulus

$$z = \frac{3+i}{2+i}$$

$$= \frac{3+i}{2+i} \times \frac{2-i}{2-i}$$

$$= \frac{6-3i+2i-i^2}{2^2-i^2}$$

$$= \frac{6-i+1}{4+1}$$

$$= \frac{7-i}{5}$$

$$= \frac{7}{5} - \frac{1}{5}i$$

$$|z| = \sqrt{\left(\frac{7}{5}\right)^2 + \left(\frac{1}{5}\right)^2}$$

$$|z| = \frac{4\sqrt{3}}{5}$$

$$\text{amp} = \tan^{-1} \left[\frac{-1/5}{7/5} \right]$$

$$\tan^{-1} \left[-\frac{1}{7} \right]$$