3.40
a3

$z_1 = a+bi \qquad z_2 = c+di$

$|z_1+z_2|^2 = |a+bi+c+di|^2 = (a+c)^2+(b+d)^2$

$|z_1-z_2|^2 = |a+bi-c-di|^2 = (a-c)^2+(b-d)^2$

$|z_1+z_2|^2+|z_1-z_2|^2 = (a+c)^2+(b+d)^2+(a-c)^2+(b-d)^2 = 2(a^2+b^2+c^2+d^2)$

$|z_1|^2 = |a+bi|^2 = a^2+b^2$

$|z_2|^2 = |c+di|^2 = c^2+d^2$

$2(|z_1|^2+|z_2|^2) = 2(a^2+b^2+c^2+d^2)$