Hwk for M443

CONVENTION: Homework that I make up on my own will be numbered continuously through the semester. Homework form the book will be given by page, and the book's number will be preceded by #.

Hwk 1-4: From introductory notes 'Imaginary Numbers are for Real'

Hwk 5: The following formula can be checked trivially by expanding:

$$(a^2 + b^2)(c^2 + d^2) = (ac - bd)^2 + (ad + bc)^2$$

Instead, confirm it by writing it in terms of complex numbers $z = a + bi$, $w = c + di$ and their complex conjugates. *Comment: In elementary number theory, this formula is exploited for* integers a, b, c, d. *It tells us that if two integers m, n each are sums of two squares, then so is their product mn.*

Hwk 6: From the definition of $|z|$, prove that $|z + w| \leq |z| + |w|$.

From book: pg 11-12: #2ab; #3abc; #5, #6; #13; #24