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CS 161

Homework 4

R-11.4

$(a + bi)\ (c + di)$

$ac - bd + (ad + bc)i$

$A = ac - bd$

$B = ad + bc$

$S1 = ac,\ S2 = bd,\ S3 = (a + b)(c + d)$

Therefore $A = S1 - S2$ and $B = S3 - S1 - S2$

Meaning $e = ac - bd$ and $f = (a + b)(c + d) - ac - bd$ where e is the real part, and f is the imaginary part.

R-24.5

p	12	6	3	1	0
r	1	12	8	5	1

R-24.10

M	C
10	193
11	197
12	122
13	166
14	29

15	2
16	118
17	272
18	18
19	304
20	39

C-24.8

One could use Fermat's factorization method which is based on the representation of an odd integer as the difference of two squares: $n = a^2 - b^2$. Which is factorable to $(a+b)(a-b)$. And if neither factor equals one, it is a proper factorization of n.