

Solutions to Homework Assignment 1

MATH 345-01

Section 2, Page 4

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1. (a) $(\sqrt{2} - i) - i(1 - \sqrt{2}i) = \sqrt{2} - i - i - \sqrt{2} = -2i.$
(b) $(2, -3)(-2, 1) = (2 - 3i)(-2 + i) = -4 + 8i + 3 = -1 + 8i = (-1, 8).$
(c) $(3, 1)(3, -1)(1/5, 1/10) = (3 + i)(3 - i)(1/5 + i/10) = 10(1/5 + i/10) = 2 + i = (2, 1).$
4. $(1 \pm i)^2 - 2(1 \pm i) + 2 = \pm 2i - 2 \mp 2i + 2 = 0.$