Manipulating Complex Numbers 2 NAME:

This worksheet continues working on adding, subtracting, and multiplying complex numbers. Complex numbers like $3 + 2i$ are dealt with in the same way as numbers like $3 + 2x$. We will also get practice checking complex solutions by substituting them into the original equations.

1. a.) If $i = \sqrt{-1}$, then what must i^2 be? (Hint: $i^2 = \sqrt{-1}\sqrt{-1}$)

b.) What is i^3? (Hint: $i^3 = i^2 * i$)

c.) What is i^4? (Hint: $i^4 = i^2 * i^2$)

2. Simplify each of the following by performing the operation and combining like terms.

a.) $.35 + .65i - (.16 + .44i)$

b.) $2.4i + 3i + .7i - 2.9 - .38 + 3.2$

c.) $4i^2 + 3i - 5 - (3 - 2i)$

d.) $(5 + .4i)(5 - .4i)$

3. The following equations are given with their complex solutions. Check both solutions by substituting them into the original equation to see if they work. Some solutions are rounded.

a.) $-13 = x^2 - 6x$ Solutions: $3 \pm 2i$

b.) $x^2 - .8x + .2 = 0$ Solutions: $.4 \pm .2i$

c.) $0 = 2x^2 + 3x + 2$ Solutions: $-.75 \pm .66i$