Name_____ Date_____ Period_____

COMPLEX NUMBER WORKSHEET

PROPERTIES OF COMPLEX NUMBERS

$i = \sqrt{-1}$

$i^2 = -1$

$\sqrt{-a} = i\sqrt{a}, \quad a \geq 0$

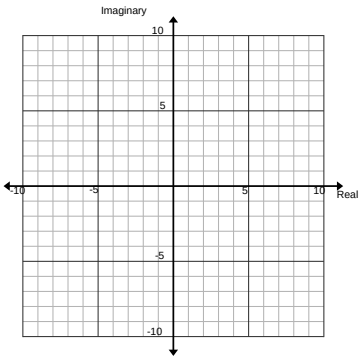
$(a+bi)+(c+di) = a+c+(b+d)i$

$(a+bi)-(c+di) = a-c+(b-d)i$

$(a+bi)(c+di) = ac-bd+(ad+bc)i$

$(a+bi)(a-bi) = a^2+b^2$

1. For the complex number $-10+4i$, identify the real number and the imaginary number.



2. Plot the four complex numbers in the same complex plane.

A) $-2+4i$ B) $7i$

C) 5 D) $3-2i$

3. Evaluate.

a) i^6 b) i^{11} c) i^{24}

4. Write the expression as a complex number in standard form.

a) $(5+2i)+(3-2i)$ b) $-i+(7-5i)-3(2-3i)$ c) $(-2+4i)+(3-9i)$

d) $(-2+4i)-(3+9i)$ e) $(5-2i)-2(3+i)$ f) $3i(6-5i)$

g) $i(2+i)$ h) $(2+3i)(1-4i)$ i) $(-3+7i)(1-2i)$

j) $(4+2i)^2$ k) $(2i)(1-4i)(1+i)$

5. Solve each equation.

a) $4x^2+20=0$ b) $4x^2+5=-7$