Name: _____

Zeros of Polynomial Functions

Exercise 1: Find a polynomial function with real coefficients such that:

1) Its degree is 4 having roots 3i and -2i, such that $f(1)=2$
2) Its degree is 5 having roots 1-i,3and i, such that $f(0)=5$
3) Its degree is 3 having roots 5i and 1, such that $f(2)=6$
4) Its degree is 3 having roots 3 and 2-i, such that $f(1)=4$
5) Its degree is 3 having roots 5 and i+1, such that $f(-1)=3$
6) Its degree is 3 having roots 7 and 2i+3, such that $f(5)=1$

Exercise 2: Find the zeros of each polynomial function given one root.

	Polynomial function	Root
1)	$g(x)=x^3-14x^2+68x-20$	$4-2i$
2)	$g(x)=x^6+2x^5+14x^4+74x^3+85x^2+672x+1872$	4i and $2-3i$
3)	$f(x)=2x^3+3x^2+50x+75$	$5i$
4)	$f(x)=x^3+x^2+9x+9$	$3i$
5)	$g(x)=x^3-7x^2-x+87$	$5+2i$

Exercise 3: A polynomial of degree 6 has the following zeros:

1) $x=3$ of multiplicity 2
2) $x=2i$
3) $x=4i$

Write a possible equation for the polynomial in factored form