**Nipissing University Senior Mathematics Competition**

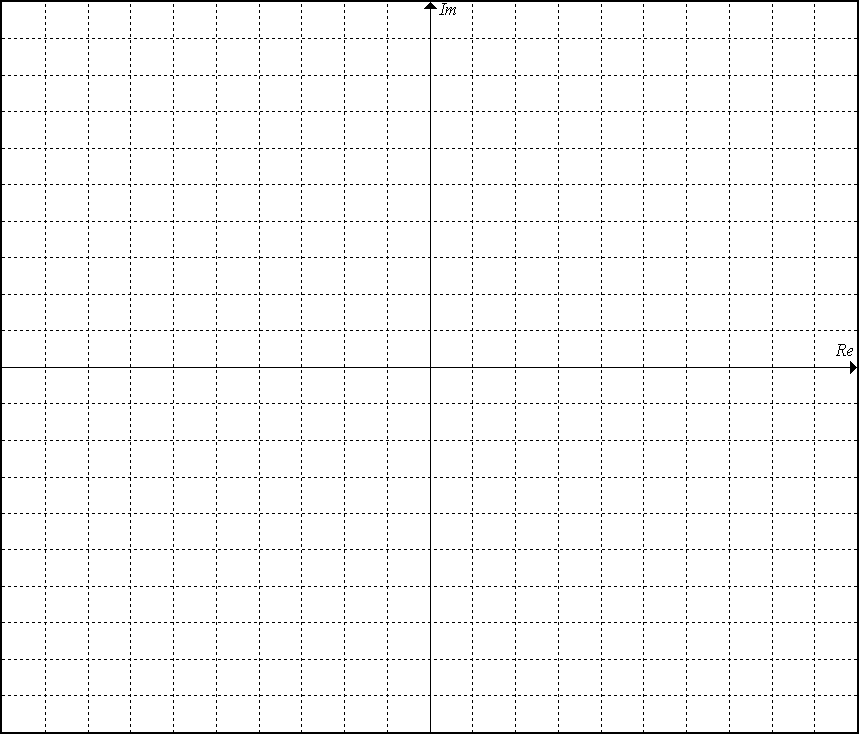
Problem Set 3 – Complex Numbers – May 7, 2010

1. Determine *x* and *y*, real numbers such that the equation below should be satisfied:
2. Calculate and/or simplify. Give your answers in the form   
   a)

b)

c)

1. Interpret geometrically and show on the complex plane the following relations:



1. Determine *z* such that all complex numbers *z*  and must have the same modulus and .
2. Determine all the ordered pairs in the Cartesian plane such that:
3. Solve the following equations
4. Let **.** Determine *a* and *b* such that , and find all values of z for which P(z)=0.