1. State the Cauchy-Riemann equations.
2. Give an example of a function $f(z)$ that is analytic.
3. Give an example of a function $f(z)$ that is not analytic.
4. Suppose $f(x+i y)=x^{2}-y^{2}+2 x y+i v(x, y)$. If $f$ is analytic, then what can $v(x, y)$ be?
