

$$\begin{aligned}
f(z) &= iz^2 + z = i(x+iy)^2 + x+yi = \\
&= i(x^2 + 2ixy - y^2) + x+yi = \\
&= ix^2 - 2xy - iy^2 + x+yi = \\
&= x - 2xy + i(x^2 - y^2 + y) \\
\operatorname{Re} z &= x - 2xy \quad \operatorname{Im} z = x^2 - y^2 + y
\end{aligned}$$