$\mathbb{R}e(f(z))$
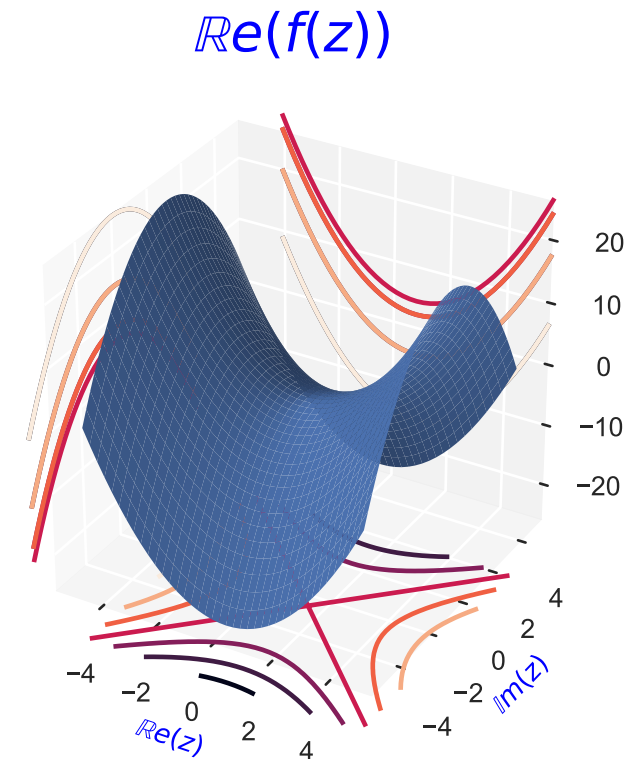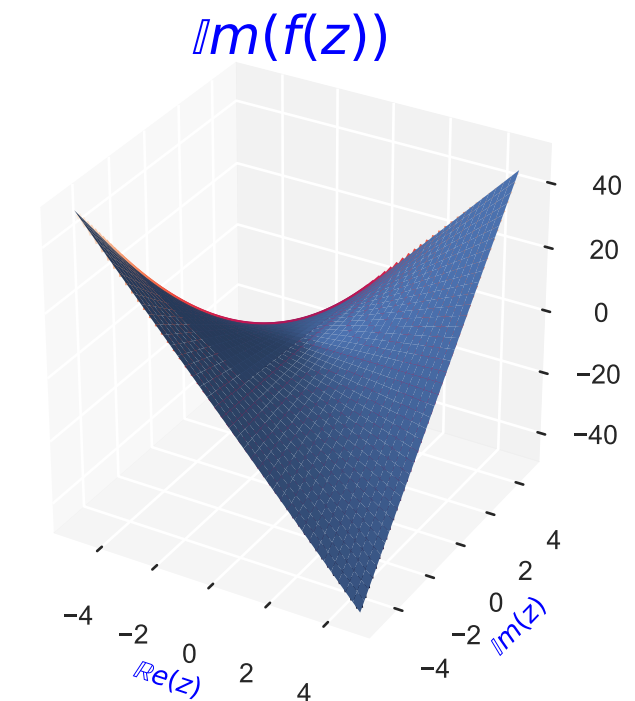
El mapeo $f(z) = z^2$

con $z = x + iy$ es

$f(z) = u(x, y) + v(x, y)i$

con

$u(x, y) = x^2 - y^2$

$v(x, y) = 2xy$

$\mathbb{R}e(f(z)) = x^2 - y^2$

$\mathbb{I}m(f(z))$

El mapeo $f(z) = z^2$

con $z = x + iy$ es

$f(z) = u(x, y) + v(x, y)i$

con

$u(x, y) = x^2 - y^2$

$v(x, y) = 2xy$

$\mathbb{I}m(f(z)) = 2xy$

$|f(z)|$

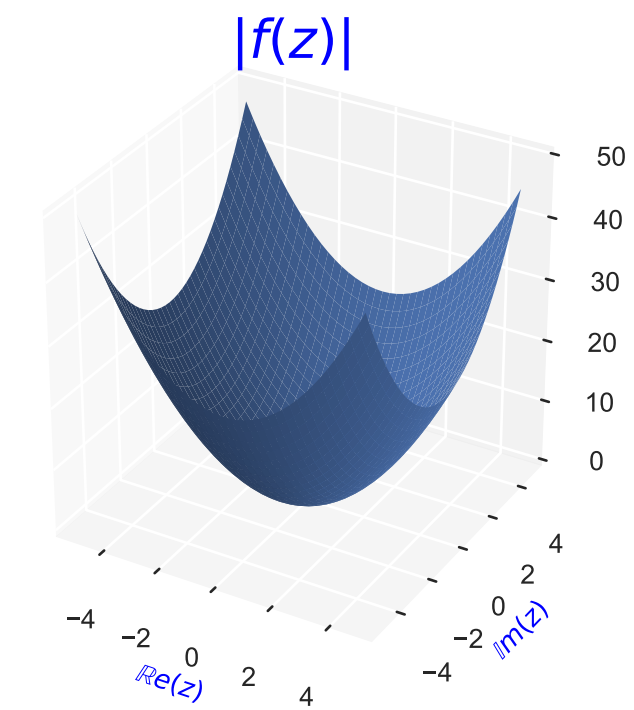El mapeo $f(z) = z^2$

con $z = x + iy$ es

$f(z) = u(x, y) + v(x, y)i$

con

$u(x, y) = x^2 - y^2$

$v(x, y) = 2xy$

$|f(z)| = \left(x^4 + 2x^2y^2 + y^4\right)^{0.5}$

$\measuredangle f(z)$

El mapeo $f(z) = z^2$

con $z = x + iy$ es

$f(z) = u(x, y) + v(x, y)i$

con

$u(x, y) = x^2 - y^2$

$v(x, y) = 2xy$

$\measuredangle f(z) = \operatorname{atan}\left(\frac{2xy}{x^2 - y^2}\right)$