

Complex Map $z \mapsto z^{ee} + ee \cdot z$
(**Default:** $z \rightarrow z^2 + 2z$)

Look at the functions $z \rightarrow z^2$, $z \rightarrow 1/z$ and their ATOs first.

Of course, since $z^2 + 2z + 1 = (z + 1)^2$, this function is not very different from the first example $z \rightarrow z^2$. But the change puts the critical point to -1 on the unit circle ($f'(-1) = 0$). Therefore, if one looks what this map does to a Polar Grid, one can study the behaviour near the critical point $z = -1$ with a different grid picture than in the first example. Circles outside the unit circle are mapped to Limaçons (Plane Curves Category) which wind around -1 twice. The unit circle is mapped to a Cardioid and one can see the interior angle of 180° of the unit circle at -1 mapped to the interior angle of 360° of the Cardioid at -1 . Also one can see that a neighbourhood of -1 is strongly contracted by this function.

See the function $z \rightarrow z + 1/z$ next.

H.K.