The DARK points in the diagram below mark locations in the $z$-plane from which the complex Newton iteration applied to the Wallis equation

$$z^3 - 2z - 5 = 0$$

needs an EVEN number of steps to converge to the real root $z_1 \approx 2.094\,551\,482$ to an absolute accuracy $|\Delta z| < 1.0\times10^{-8}$.

The diagram on the opposite side reports similarly for the complex root $z_2 \approx -1.047\,275\,741 + 1.135\,939\,889\,i$. 