We take \( a > 1 \) so that both fixed points are in \([-1,1]\) and \( a \leq y \) so that the map does not go outside \([-1,1]\). (Note that \( F(y) = \frac{a}{y} \).)

\[ a < 1 \]

**Stability of fixed point**

\[
\frac{dF_n}{dx} = a - 2x \quad a
\]

\[
\left. \frac{dF_n}{dx} \right|_{x=0} = a \quad \text{unstable if } a > 1
\]

\[
\left. \frac{dF_n}{dx} \right|_{x=1-\frac{1}{a}} = a - 2a \left(1 - \frac{1}{a}\right) = -a + 2
\]

\[ \text{stable } 1 < a < 3 \]

\[ \text{unstable } a > 3 \]

What happens for \( a > 3 \)?

We can get period-\( c \) orbits.