From \( z = \frac{1}{2} (w/\xi) + (1/2) \) we have

\[
Z = 0 \Rightarrow W = \frac{\xi}{2} \quad \text{and}
\]

\[
Z = \frac{\xi - 1}{\xi} = 1 - \frac{1}{\xi} \Rightarrow 1 - \frac{1}{\xi} = -w/\xi + \frac{1}{2}
\]

\[
\Rightarrow \xi - 1 = -w + \frac{5}{2} \Rightarrow W = 1 - \frac{\xi}{2}.
\]

Note that \( w^+ \) corresponds to \( Z = 0 \), which is unstable for \( \xi > 1 \), and \( w^- \) corresponds to \( Z = \frac{\xi - 1}{\xi} \) which is stable for \( 1 < \xi < 3 \).