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**Chris D Lynd\*** (clynd@bloomu.edu) and **James Wright Sharpe**. *The Asymptotic Behavior of the Solutions of a  $k$ th-order Difference Equation.*

When trying to prove the convergence of the solutions of a  $k^{\text{th}}$ -order difference equation, the M&m Theorem is one of the few tools available. We analyze the solutions of the  $k^{\text{th}}$ -order difference equation  $x_{n+1} = (x_{n-1} + x_{n-2} + \cdots + x_{n-k})^p$  where  $p$  is a real number between 0 and 1 and the initial terms  $x_1, \dots, x_k$  are positive. We use the M&m Theorem to prove that every positive sequence generated by the  $p^{\text{th}}$  power of the  $k^{\text{th}}$ -order Fibonacci recurrence relation converges to  $k^{\frac{p}{1-p}}$ . (Received July 29, 2017)