1023-34-477 **John E. Ehrke*** (john_ehrke@baylor.edu), John E. Ehrke, 2414 S. University Parks Dr. #2A, Waco, TX 76706. *Positive Solutions of an n^{th} Order Boundary Value Problem: A Functional Approach.*

We apply a well-known fixed point theorem to guarantee the existence of a positive solution for the n^{th} order differential equation

$$y^{(n)} + f(y(t)) = 0, \quad t \in [0,1],$$

having boundary conditions,

$$y^{(r_i-1)}(0) = 0, \quad 1 \leq i \leq k,$$

$$y^{(s_j-1)}(1) = 0, \quad 1 \leq j \leq n-k,$$

where $\{s_1, \cdots, s_{n-k}\}$ and $\{r_1, \cdots, r_k\}$ form a partition of $\{1, \cdots, n\}$ such that $r_1 < \cdots < r_k$, $s_1 < \cdots < s_{n-k-1}$, and $\{r_{k-1} \cdots r_k\} \neq \{n-1, n\}$ and $\{s_{n-k-1}, s_{n-k}\} \neq \{n-1, n\}$. Under these assumptions we show this boundary value problem has a positive solution for all $n \geq 2$. Some consideration is given to bounds for the solution. (Received September 14, 2006)