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## Generating functions method for constructing new iterations

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In this paper we propose a generating function's method for constructing new two and three-point iterations with  $p$  ( $3 \leq p \leq 8$ ) order of convergence. This approach allows us to derive a new family of optimal order iterative methods that includes well known methods as a special cases. The necessary and sufficient conditions for  $p$ -th order convergence of proposed iterations are given in term of parameters  $\tau_n$  and  $\alpha_n$ . Several numerical results are given to demonstrate the efficiency and performance of the presented methods and compare them with some other existing methods.

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