

# AN ALGEBRAIC METHOD FOR THE EOQ MODEL WITH BACKORDERING

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## ABSTRACT

The Economic Order Quantity (EOQ) model is the cornerstone of inventory management and all business students study it. It is often a challenge to teach the model because some students are not mathematically well-prepared. The model is optimized using differential calculus, and not all business students easily understand the derivation. When a second decision variable is added to the model, which happens with the planned backorders model, the challenge becomes even bigger. We present a simple method to teach the EOQ model with planned backorders to undergraduate business students or practitioners who are not well-versed in differential calculus. Our approach uses only algebra and it is very short, succinct and intuitive.

*Keywords: inventory, EOQ, economic order quantity, algebraic methods, teaching, pedagogy.*