Guidelines for Solving Minimization and Maximization Problems:

1. Identify all given quantities, and all *quantities to be determined*. If possible, make a sketch.
2. Write a primary equation, for the quantity that is to be maximized or minimized.
3. Reduce the primary equation to an equation that has a *single variable*. This will often require the use of secondary equations relating the variables, and substitution.
4. Determine the feasible domain of the equation. That is, determine the values for which the stated problem makes sense.
    a. You MUST determine whether or not the feasible domain is a closed interval or not a closed interval.
5. Determine the maximum or minimum by using one of the following methods:
    a. First Derivative Test – if the feasible domain is not a closed interval.
    b. Second Derivative Test – if the feasible domain is not a closed interval.
    c. Extreme Value Theorem – MUST be used if the feasible domain is a closed interval.

*** Try to use EVT if possible. ONLY if EVT does not apply, use the First or Second Derivative Test***

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