Optimization

1. Understand the problem.
   What are we looking for? What is known? What is unknown?

2. Draw a picture and introduce some variables.

3. Determine the function to be optimized and its domain.
   (i) There will often be two equations: one corresponding to given quantities and one relating unknown quantities that must be maximized or minimized.
   (ii) Absolute extrema are only guaranteed on a closed interval $[a, b]$.

4. Apply calculus to find the absolute maximum or minimum.

5. Make sure you answer the question.