Optimization / Related Rates notes

(0) Read problem: understand the idea, draw a picture if possible.
(1) Assign names:
  - Choose axes, quantities of interest.
  - Give a *name* to each quantity of interest.
(2) Function/relations: express quantity to be optimized as a function of the dependent variable.
  - Sometimes the quantity depends on several variables, and we need to enforce *relations* between them to end up with one independent variable.
(3) Calculus: find domain and the minima and maxima on the domain.
  - (Related rates: use the chain rule when differentiating).
(4) Interpretation: solve the problem using the calculus result.
  - Make *sanity checks* (area can't be negative, for example).