

## Math 150 Lecture Notes Applications

### Polya's Four-Step Problem Solving Process:

1. **Understand the Problem.**  
Write it in your own words; identify the unknowns; write information from the problem
2. **Devise a Plan.**  
Decide on one or more strategies to use
3. **Carry out the Plan.**  
Follow through on the strategies, keeping a good record of your work.
4. **Look Back/Check.**  
Check the results in the original problem; interpret the solution in terms of the original problem to see if it makes sense **and** answers the question asked.

Example 1: A woman 5 ft tall is standing near a street lamp that is 12 ft tall. Find a function that models the length  $L$  of her shadow in terms of her distance  $d$  from the base of the lamp.

Example 2: Find the dimensions of the rectangle with perimeter 20 meters that has the largest area.

Example 3: A kite frame is made from six pieces of wood as shown in the figure. Find an expression for the area of the kite in as a function of  $x$ . How long should each of the two crosspieces be in order to maximize the area of the kite?

