STAT 435 HW1

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1.

a)

Taking a parametric approach will have following pros:
- Does not need a lot of data
- Simplifies the problem because it is generally much easier to estimate a set of parameters and cons:
- The model we choose will usually not match the true unknown form of f, and if the chosen model is too far from the true f, then our estimate will be poor.
Taking a nonparametric approach will have following pros:
- Avoid unnecessary assumptions about the functional form of f will have the potential to accurately fit a wider range of possible shapes for f.
and cons:
- A very large number of observations is required in order to obtain an accurate estimate for f.

b)

For parametric approach, I would say when we have a small number of observations to work with, such as getting survey on people's blood pressure and hours of physical exercises they do each week. And we know that having more time to exercises will result in a lower blood pressure as a matter of fact. Hence we can make assumptions to f in this case to be a linear model:

$$blood\ pressure \approx \beta_0 + \beta_1 \times physical\ exercises$$