At tomorrow’s 10 minute design review, in addition to showing a sketch of your structure, you are expected

- to have considered the possibility of failure due to the uniaxial stress in a member exceeding a strength (yield) criterion - including a healthy factor of safety (e.g., 2.0)
- to have considered the possibility of failure due to buckling of any member subject to a compressive load. For this estimate a buckling load using the result we derived for a beam simply-supported at both ends and/or using the result you obtained in last week’s test of a simple truss.
- to have considered the possibility of the vertical deflection at any point exceeding the limit prescribed in the specifications. For this, a rough estimate based upon modeling the truss as a beam with an “I” computed as that due to two equal areas separated by a distance equal to the overall depth of the truss will suffice. Use of Trussworks will also suffice.
- Cost should also be estimated. The way the costs were defined, i.e.,

  The cost of the steel stock per unit of length is proportional to the cross-sectional area. The unit cost of a spot welded joint is one tenth (1/10) the cost of a length L (the span length) of the heaviest stock.

means that you can only estimate relative costs, of one design compared to another. You can check the sensitivity of cost of your design to a single change - for example, due to a change in member area. To ground your estimates, you might arbitrarily assign a cost per unit length to, say the heaviest stock - e.g., 10 lira, or 1 dollar, whatever.

NB: With regard to the use of Trussworks: To remain in control, its best that you do a much as you can “by hand”, then turn to the computer to do the matrix analysis. This means you best start with an equilibrium determinant design.