

M05M.2 - Suspension Bridge Shape

Problem

Determine the equilibrium shape $y(x)$ of the suspension cable in a bridge shown in the figure. The length of the roadbed is L and the mass M is so large that you can neglect the weight of the suspension cable and the and the vertical supporting cables. The lengths of the vertical cables are adjusted so there is no shear stress in the roadway. You can also assume that the vertical cables are close enough together that y can be approximated as an analytic function of x .

