Q.4. Solve the following differential equation for axial deformation of a bar of length 12mm using Galerkin Weighted Residual method **[7 marks]**

$$\frac{d^2u}{dx^2} = -0.75(4-x)^2$$

One end of the bar is fixed whereas the displacement is 12 mm at the other end of the bar.

You may use Matlab for computations. Use the trial function $\hat{u}(x) = c_0 + c_1 x + c_2 x^2$

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