# Numerical Methods in Engineering and Applied Science. Assignment 2.

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1. Is (1) a consistent approximation to the first derivative of u(x)?

Yes. Answer why in the next point.

1. Use the Taylor series expansion to find the order of this approximation.

Let’s consider coefficients at .

Coefficient at is zero.

Performing this procedure for other members in the Tailor series:

Therefore:

3rd order of approximation.

While it is small then it is a consistent approximation.

Homogenous:

Particular solution of the equation.

Let

get:

Summing up: