A Numerical Method

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- A **Euler's Method** (1) may be used to approximate values of a solution curve, as long as those points are relatively near the values used, and the step size, h, is not too big:

$$y_{n+1} = y_n + hf(x_n, y_n) \tag{1}$$

- **Absolute Error** (2) gives you the deviation between the correct value and the value obtained from an approximation:

$$|value - approximation| \tag{2}$$

- The relative error (3) and percentage relative error (4) are shown below:

$$\frac{absolute}{|value|} \tag{3}$$

$$\frac{absolute}{|value|} \cdot 100\% \tag{4}$$

- Euler's Method will not be used often, we will use the Runge-Kutta method for often.
- A computer program made to graph or process numerical data is known as a numerical solver. Many computer programs can give corresponding approximations, or numerical solution curves.