Explanations of methods

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Euler method: The main idea of Euler method is to plot a function, which makes an approximation to the exact solution. How would we do that? We use slope of tangent lines to the original curve at some points x, so that all these pieces (lines from x_i, y_i to x_{i+1}, y_{i+1}) will be parallel to the original plot at point x_i, y_i. To count parallel pieces we consider our plot as some function of original function's derivative.

Improved Euler method: The idea is just the same as for Euler method, but we need our pieces from x_i, y_i to x_{i+1}, y_{i+1} to be parallel not to the original plot in x_i, y_i, but in $\frac{x_i+x_{i+1}}{2}$ (so in the center of our original piece).

Runge-Kutta method: The idea of this method is not trivial at all, but we consider some approximation of 4 different point on this piece from x_i, y_i to x_{i+1}, y_{i+1} using some coefficients, instead of a half of our exact plot's piece to make a slope of it's tangent line.