

### Exercise: An Example of Euler's Method

**Exercise.** Consider the first order ODE  $y' = f(x, y) = y^2 - x$  with initial condition  $y(0) = -1$ . Estimate  $y(1)$ , using Euler's method with  $h = 0.5$ . Organize your answer in a table.

**Answer.**

$n$	$x_n$	$y_n$	$f(x_n, y_n) = y_n^2 - x_n$	$hf(x_n, y_n)$
0	0.0	-1.00	1.00	0.50
1	0.5	-0.50	-0.25	-0.13
2	1.0	-0.63		

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