

Euler's Method

In Exercises 15 and 16, (a) find the exact solution of the initial value problem. Then compare the accuracy of the approximation to $y(x^*)$ using Euler's method starting at x_0 with step size (b) 0.2, (c) 0.1, and (d) 0.05.

15. $y' = 2y^2(x - 1)$, $y(2) = -1/2$, $x_0 = 2$, $x^* = 3$

16. $y' = y - 1$, $y(0) = 3$, $x_0 = 0$, $x^* = 1$

Euler's Method

In Exercises 15 and 16, (a) find the exact solution of the initial value problem. Then compare the accuracy of the approximation to $y(x^*)$ using Euler's method starting at x_0 with step size (b) 0.2, (c) 0.1, and (d) 0.05.

15. $y' = 2y^2(x - 1)$, $y(2) = -1/2$, $x_0 = 2$, $x^* = 3$

16. $y' = y - 1$, $y(0) = 3$, $x_0 = 0$, $x^* = 1$

Euler's Method

In Exercises 15 and 16, (a) find the exact solution of the initial value problem. Then compare the accuracy of the approximation to $y(x^*)$ using Euler's method starting at x_0 with step size (b) 0.2, (c) 0.1, and (d) 0.05.

15. $y' = 2y^2(x - 1)$, $y(2) = -1/2$, $x_0 = 2$, $x^* = 3$

16. $y' = y - 1$, $y(0) = 3$, $x_0 = 0$, $x^* = 1$