

Diff Equations Section 2.6 Homework

You may do these problems right on this page. A fresh copy is available on the class website, if you need one.

1) Use Euler's Method with $h = 0.1$ to find a three-decimal approximation of the indicated value. Round off all calculations to three-decimals as well.

$$\begin{aligned} \text{DE:} & \quad dy/dx = y \\ \text{Init Cond:} & \quad y(0) = 1 \end{aligned}$$

Our interest: $y(1.0)$ Circle your final answer!

Step	x	y	h	f(x,y)
0	0.0	1.000	0.1	
1	0.1			
2				
3				
4				
5				
6				
7				
8				
9				
10				

Reminders: h = the increment in the x-direction (Δx)
So the increment in the y-direction (Δy) will be $\Delta x \cdot dy/dx$, or $h \cdot f(x,y)$
And our final answer will be the final y-value.

2a) Use Euler's Method with $h = 0.1$ to find a three-decimal approximation of the indicated value. Round off all calculations to three-decimals as well.

DE: $dy/dx = 2xy$
Init Cond: $y(1) = 1$

Our interest: $y(1.5)$ Circle your final answer!

Step	x	y	h	f(x,y)
0	1	1.000	0.1	
1	1.1			
2				
3				
4				
5				

2b) Solve this DE using one of our solution methods, then evaluate that solution at $x = 1.5$ to compare the answers.