

Ch 7.1.2

Complete the tables to find the value of dy/dx at the points (x, y) . Then create a slope field and show the approximate solution passing through the given point.

1. $dy/dx = y, (1, 1)$

x, y	-2	-1	0	1	2
2	2	2	2	2	2
1	1	1	1	1	1
0	0	0	0	0	0
-1	-1	-1	-1	-1	-1
-2	-2	-2	-2	-2	-2

x, y	-2	-1	0	1	2
2					2
1				1	
0	0	0	0	0	
-1					
-2					

2. $dy/dx = x + y, (1, 1)$

x, y	-2	-1	0	1	2
2	0	1	2	3	4
1	-1	0	1	2	3
0	-2	-1	0	1	2
-1	-3	-2	-1	0	1
-2	-4	-3	-2	-1	0

x, y	-2	-1	0	1	2
2					
1	-1			2	
0		-1			
-1			-1		
-2					

3. $dy/dx = -x/y, (0, 2)$

x, y	-2	-1	0	1	2
2	1	0.5	0	-0.5	-1
1	2	1	0	-1	-2
0	∞	∞	∞	∞	∞
-1	-2	-1	0	1	2
-2	-1	-0.5	0	0.5	1

x, y	-2	-1	0	1	2
2		0.5	0	-0.5	

1					
0					
-1					
-2					

Solve the following differential equations: On the starred problem, take the derivative of the answer and show it gives the original DEQ.

1. $dy/dx = 2x / y \Rightarrow y \, dy = 2x \, dx$

2*. $dy/dx = y^2 \Rightarrow ?$

3. $dy/dx = (x + \sin(x)) / 3y^2 \Rightarrow 3y^2 \, dy = x + \sin(x) \, dx$

4*. $dy/dx = 4y \Rightarrow ?$

5. $dy/dx = ky \Rightarrow dy/y = k \, dx$

6*. $dy/dx = xy \Rightarrow dy/y = x \, dx$

(I'm really not sure about these)