Calculus Lesson 6.1: Slope Fields Mrs. Snow, Instructor

Solving a differential equation analytically can be difficult or even impossible. Consider a differential equation if the form y' = F(x, y) where F(x, y) is some expression in terms of x and y. At each point (x, y), the differential equation determines the slope. Remember y' =*slope*. We can use a graphical method to learn about the solution of a differential equation. By drawing short line segments with the slopes as calculated by several points you will get what is called a **slope field or a direction field** for the differential equation.



What does it look like?



Sketch the slope fields

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$\frac{dy}{dx} = \frac{1}{2}y$	4 1 ^y
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Identify the slope field

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1. $\frac{1}{dx} = 2y$	·····	8
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2. $\frac{dy}{dx} = 2x$		
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dy		
3. $\frac{y}{dx} = x + 1$	С.	D.
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$4 \frac{dy}{dt} - y - 1$	1 1 1 1 1 1 1 1 1 1	
dx = y		-0 -4 -2 0 2 4 0
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5. $\frac{dy}{dy} = x + y$		
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dy x		////
6. $\frac{dx}{dx} = -\frac{dy}{v}$		
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