

February 21

How are slope fields related to solving differential equations?

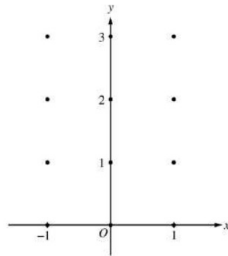
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Students will verbally explain how to draw a slope field given a differential equation
(using the words:
point, slope, segment...)

2004 AP[®] CALCULUS AB FREE-RESPONSE QUESTIONS

6. Consider the differential equation $\frac{dy}{dx} = x^2(y - 1)$.

- (a) On the axes provided, sketch a slope field for the given differential equation at the twelve points indicated.
(Note: Use the axes provided in the pink test booklet.)



- (b) While the slope field in part (a) is drawn at only twelve points, it is defined at every point in the xy -plane. Describe all points in the xy -plane for which the slopes are positive.
(c) Find the particular solution $y = f(x)$ to the given differential equation with the initial condition $f(0) = 3$.
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END OF EXAMINATION