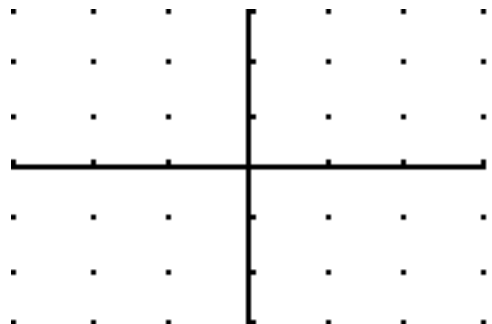


AP Calculus BC  
Section 6.1 – Slope Fields (pdf)

Draw a slope field for each of the following differential equations.

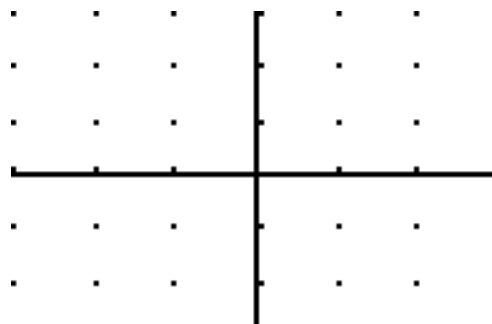
1.  $\frac{dy}{dx} = x + 1$



2.  $\frac{dy}{dx} = 2y$



3.  $\frac{dy}{dx} = x + y$



4.  $\frac{dy}{dx} = 2x$



5.  $\frac{dy}{dx} = y - 1$



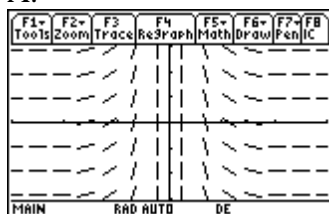
6.  $\frac{dy}{dx} = -\frac{y}{x}$



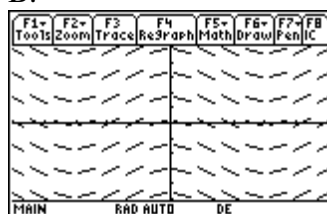
AP Calculus BC  
Section 6.1 – Slope Fields (pdf)

Match each slope field with the equation that the slope field could represent.

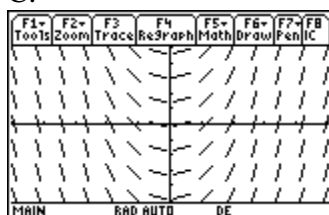
A.



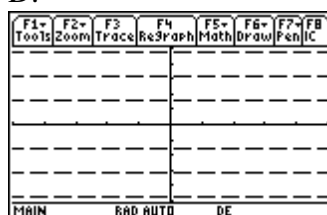
B.



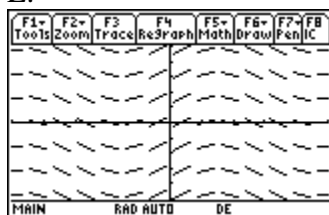
C.



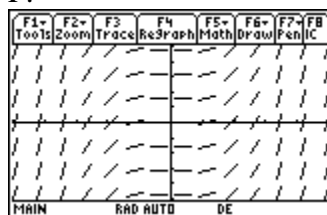
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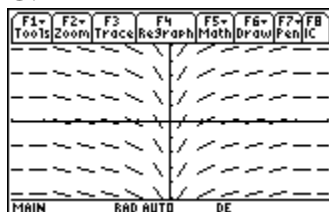
E.



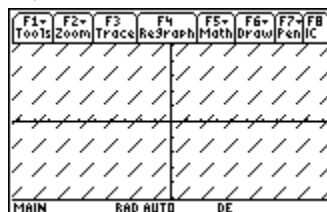
F.



G.



H.



7.  $y = 1$

11.  $y = \frac{1}{x^2}$

8.  $y = x$

12.  $y = \sin x$

9.  $y = x^2$

13.  $y = \cos x$

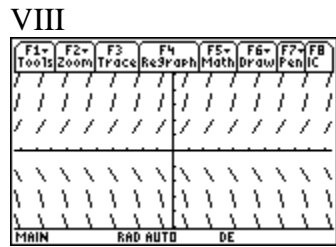
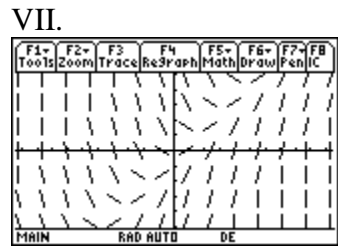
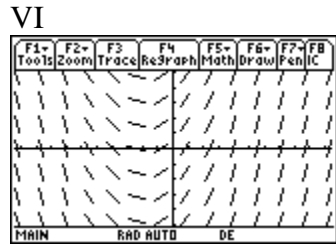
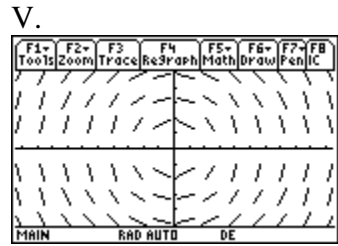
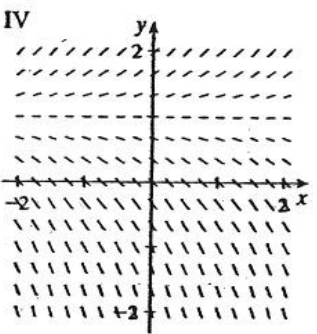
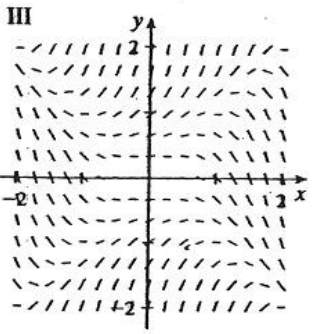
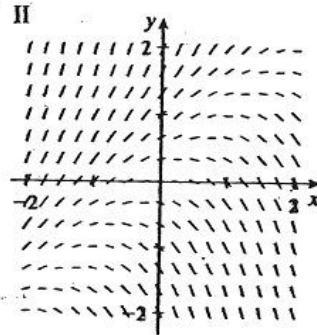
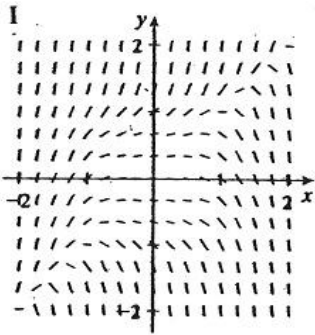
10.  $y = \frac{1}{6}x^3$

14.  $y = \ln|x|$

**AP Calculus BC**  
**Section 6.1 – Slope Fields (pdf)**

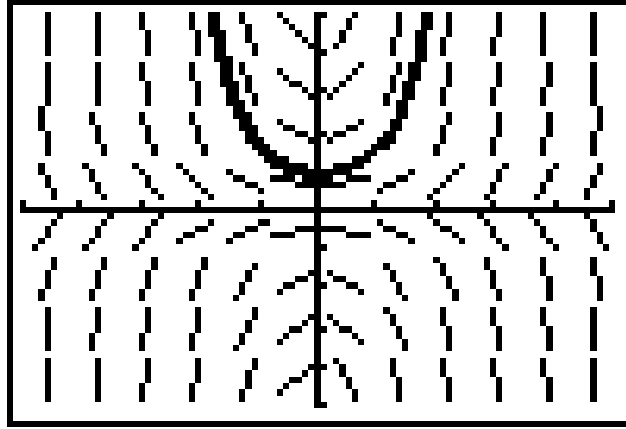
**Match the slope fields with their differential equations.**

15.  $\frac{dy}{dx} = y - 1$       16.  $\frac{dy}{dx} = y - x$       17.  $\frac{dy}{dx} = y^2 - x^2$       18.  $\frac{dy}{dx} = y^3 - x^3$
19.  $\frac{dy}{dx} = \frac{1}{2}x + 1$       20.  $\frac{dy}{dx} = y$       21.  $\frac{dy}{dx} = x - y$       22.  $\frac{dy}{dx} = -\frac{x}{y}$

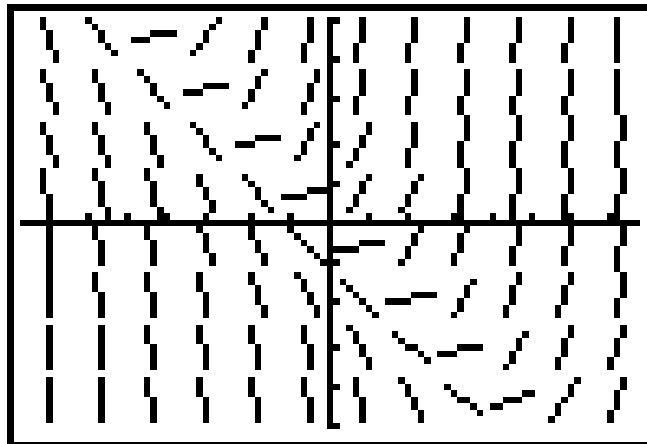


**AP Calculus BC**  
**Section 6.1 – Slope Fields (pdf)**

23. The slope field represents the differential equation  $\frac{dy}{dx} = xy$ . The solution curve through the points  $(0, 1)$  is also shown.



- a. Sketch the solution curve through the point  $(0, 2)$ . Find the equation of this solution curve.
- b. Sketch the solution curve through the point  $(0, -1)$
24. The slope field for the differential equation  $\frac{dy}{dx} = x + y$  is shown.

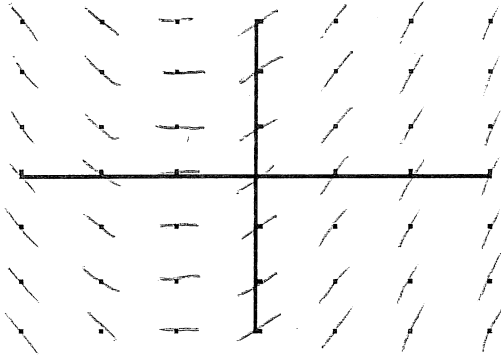


- a. Sketch the solution curve through  $(0, 1)$ .
- b. Sketch the solution curve through  $(-3, 0)$ .

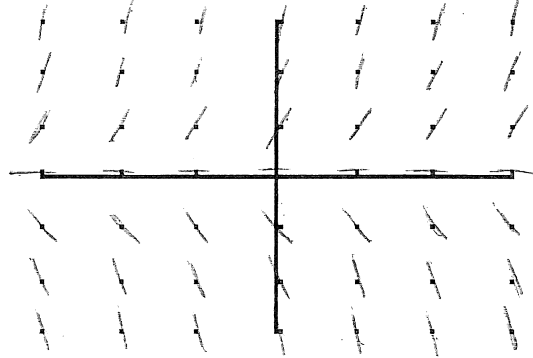
AP Calculus BC  
 Section 6.1 – Slope Fields (pdf)

Draw a slope field for each of the following differential equations.

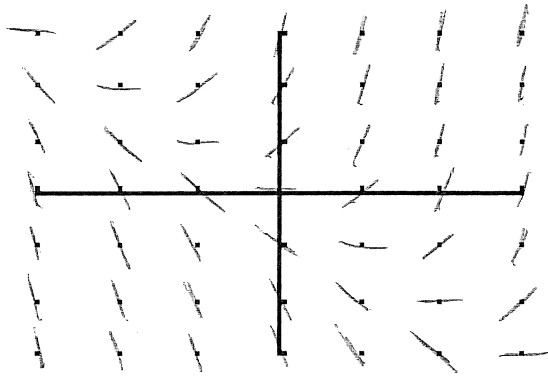
1.  $\frac{dy}{dx} = x+1 \Rightarrow y = \frac{1}{2}x^2 + x + c$



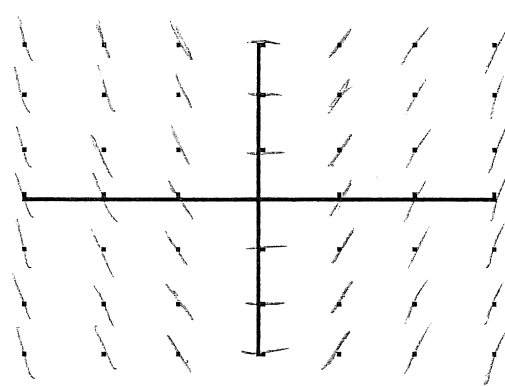
2.  $\frac{dy}{dx} = 2y \Rightarrow y = Ce^{2x}$



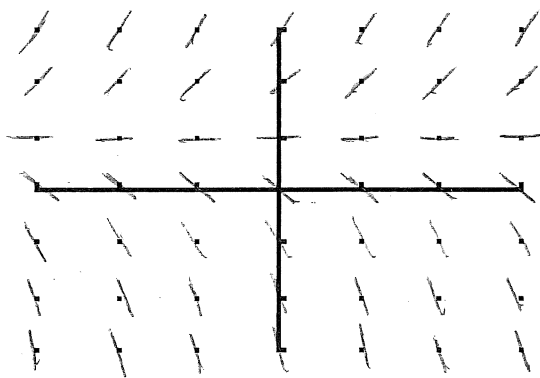
3.  $\frac{dy}{dx} = x+y \Rightarrow y = Ce^x - x - 1$



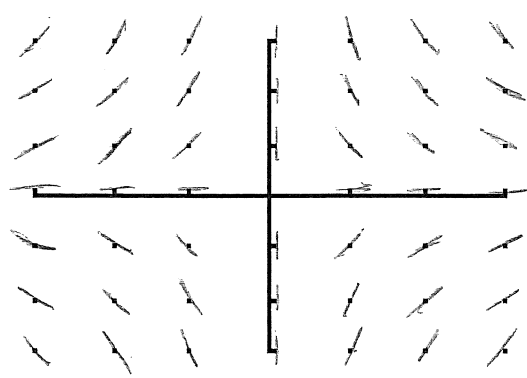
4.  $\frac{dy}{dx} = 2x \Rightarrow y = x^2 + c$



5.  $\frac{dy}{dx} = y-1 \Rightarrow y = Ce^x + 1$

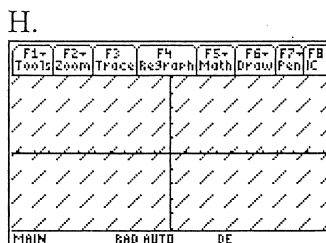
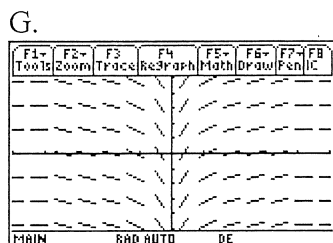
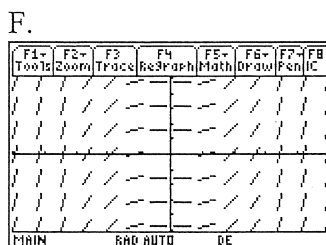
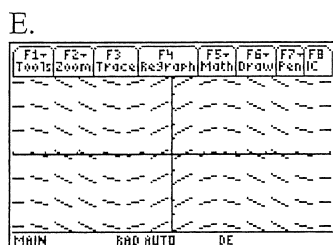
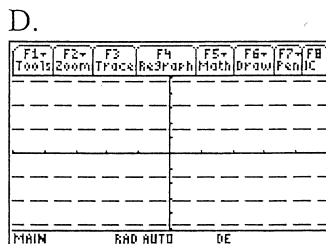
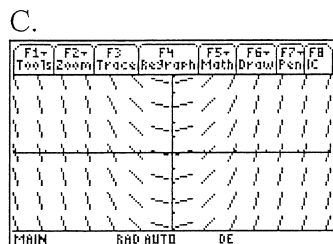
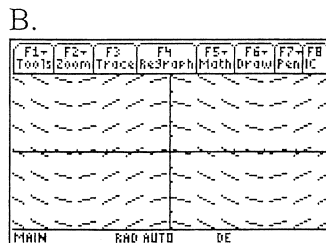
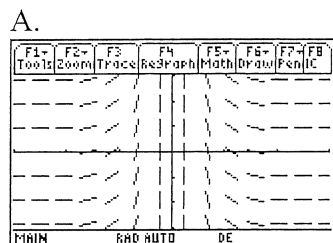


6.  $\frac{dy}{dx} = -\frac{y}{x} \Rightarrow y = \frac{c}{x}$



AP Calculus BC  
Section 6.1 – Slope Fields (pdf)

Match each slope field with the equation that the slope field could represent.



7.  $y = 1$   $y' = 0$  D

8.  $y = x$   $y' = 1$  H

9.  $y = x^2$   $y' = 2x$  C

10.  $y = \frac{1}{6}x^3$   $y' = \frac{1}{2}x^2$  F

11.  $y = \frac{1}{x^2}$   $y' = -\frac{2}{x^3}$  A

12.  $y = \sin x$   $y' = \cos x$  E

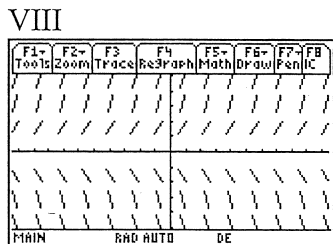
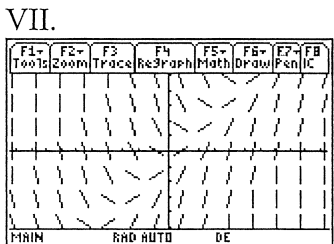
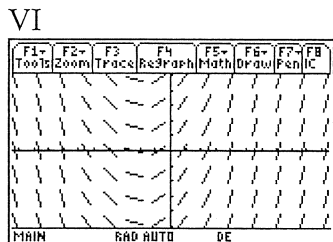
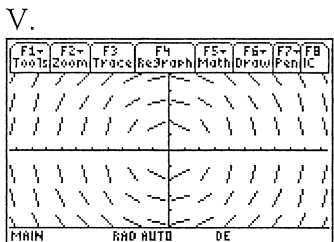
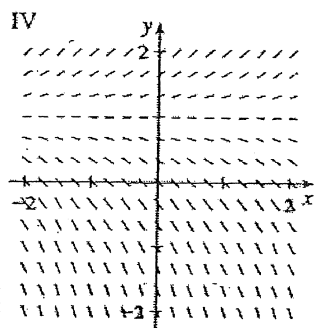
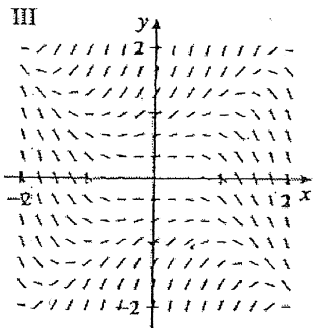
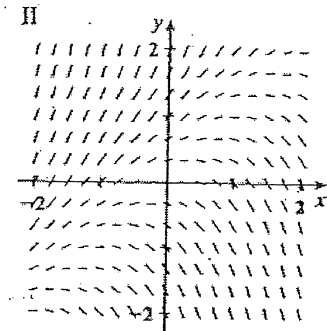
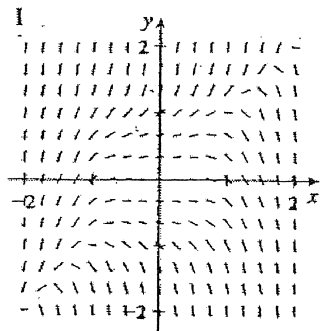
13.  $y = \cos x$   $y' = -\sin x$  B

14.  $y = \ln|x|$   $y' = \frac{1}{x}$  G

AP Calculus BC  
Section 6.1 – Slope Fields (pdf)

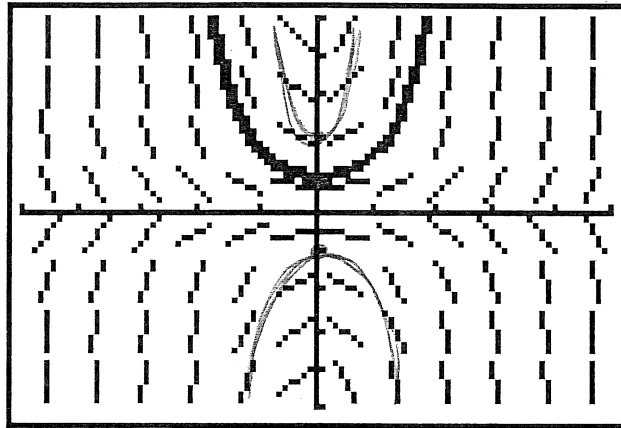
Match the slope fields with their differential equations.

15.  $\frac{dy}{dx} = y - 1$  IV    16.  $\frac{dy}{dx} = y - x$  II    17.  $\frac{dy}{dx} = y^2 - x^2$  III    18.  $\frac{dy}{dx} = y^3 - x^3$  I
19.  $\frac{dy}{dx} = \frac{1}{2}x + 1$  VI    20.  $\frac{dy}{dx} = y$  VII    21.  $\frac{dy}{dx} = x - y$  VIII    22.  $\frac{dy}{dx} = -\frac{x}{y}$  V



AP Calculus BC  
Section 6.1 – Slope Fields (pdf)

23. The slope field represents the differential equation  $\frac{dy}{dx} = xy$ . The solution curve through the points  $(0, 1)$  is also shown.



- a. Sketch the solution curve through the point  $(0, 2)$ . Find the equation of this solution curve.

$$\frac{dy}{y} = x dx$$

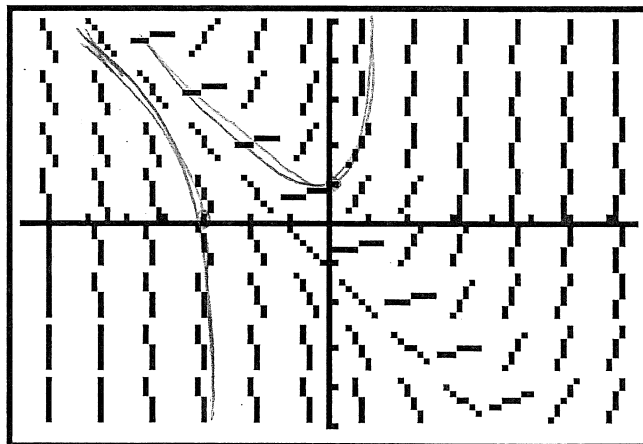
$$y = C e^{x^2/2}$$

$$2 = C e^0 \rightarrow C = 2$$

$$y = 2 e^{x^2/2}$$

- b. Sketch the solution curve through the point  $(0, -1)$

24. The slope field for the differential equation  $\frac{dy}{dx} = x + y$  is shown.



- a. Sketch the solution curve through  $(0, 1)$ .
- b. Sketch the solution curve through  $(-3, 0)$ .