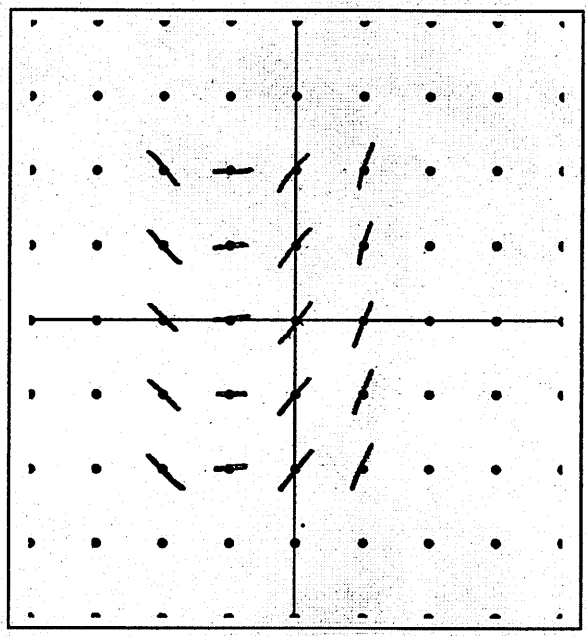


KEY

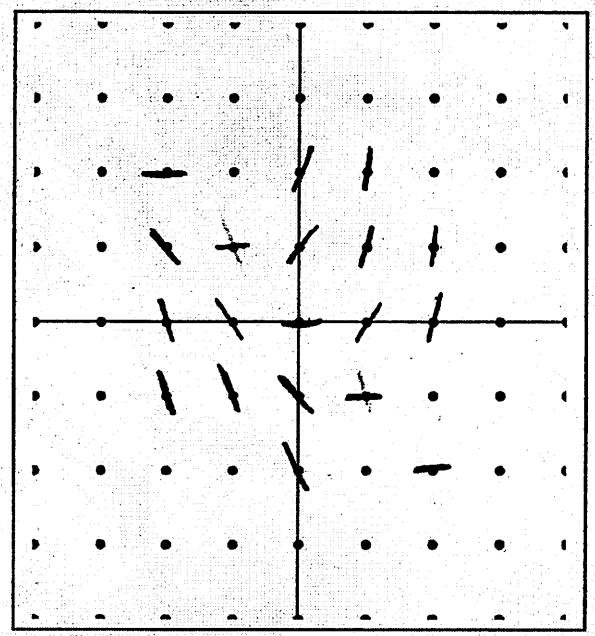
AP Calculus  
Slope Fields

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

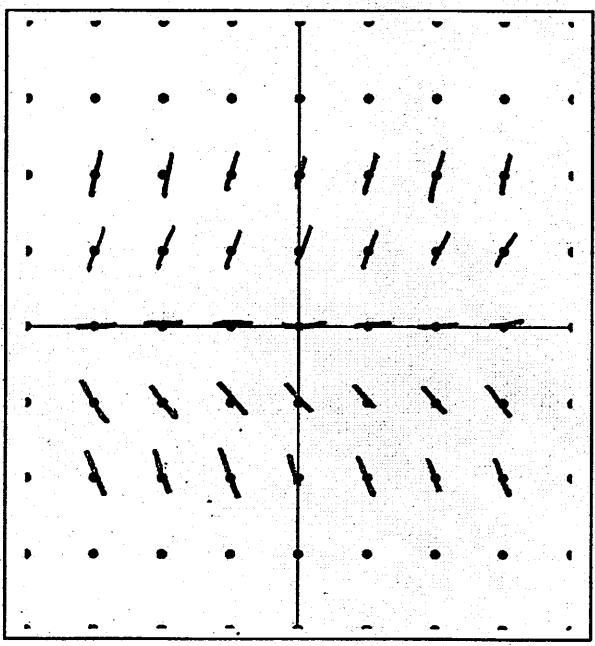
1.  $\frac{dy}{dx} = x + 1$



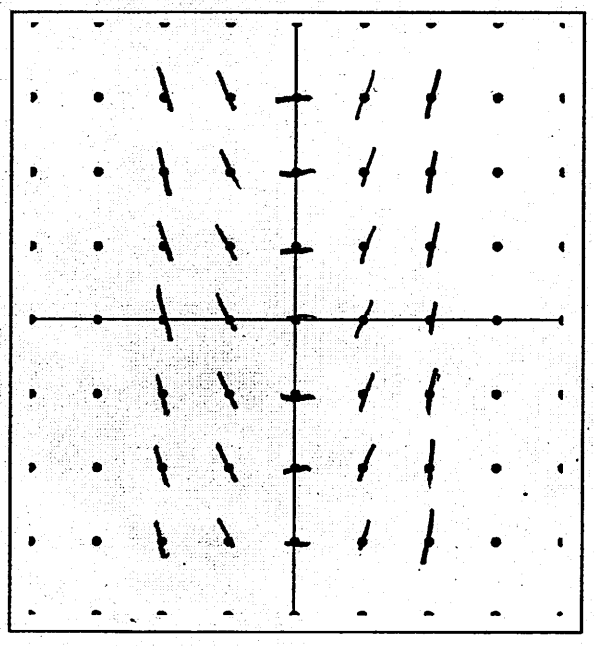
2.  $\frac{dy}{dx} = x + y$



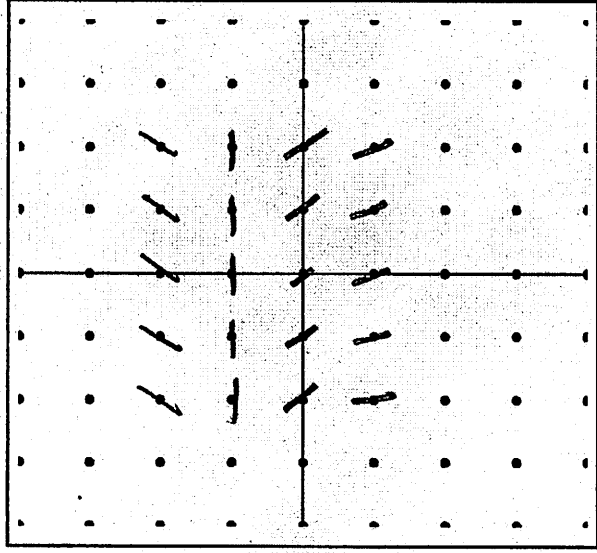
3.  $\frac{dy}{dx} = 2y$



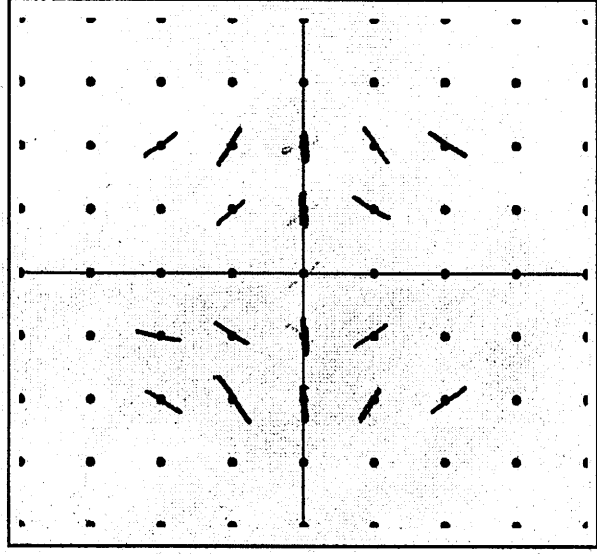
4.  $\frac{dy}{dx} = 2x$



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

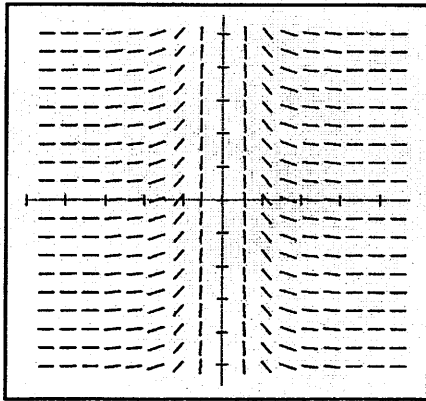


6.  $\frac{dy}{dx} = -\frac{y}{x}$

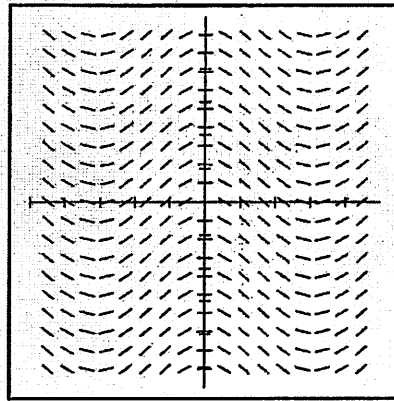


Match each slope field with the equation that the slope field could represent. The equations given in 7-14 are particular solutions.

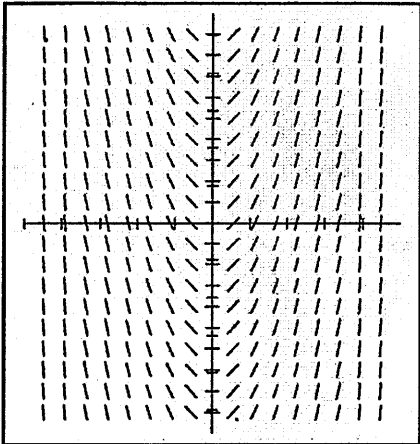
(A)



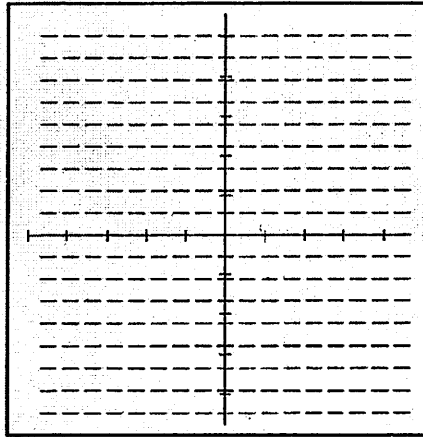
(B)



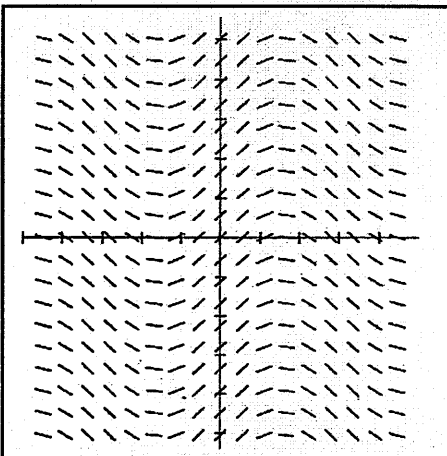
(C)



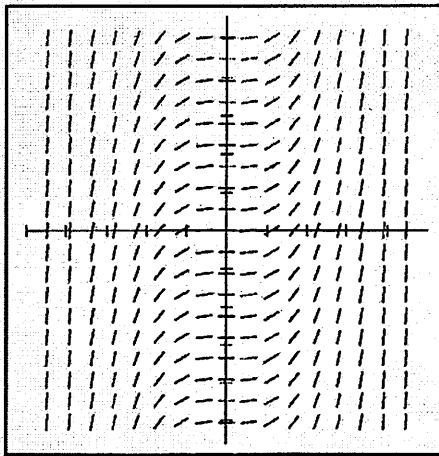
(D)



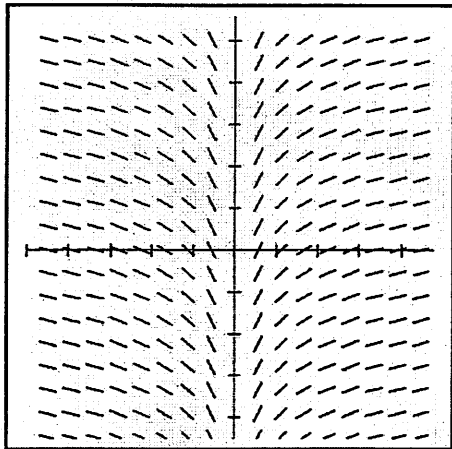
(E)



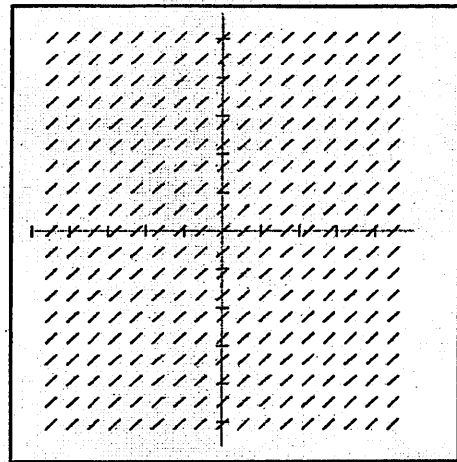
(F)



(G)



(H)



7.  $y=1$  D

8.  $y=x$  H

9.  $y=x^2$  C

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

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

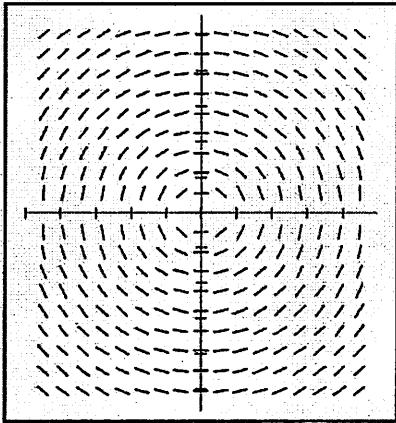
12.  $y=\sin x$  E

13.  $y=\cos x$  B

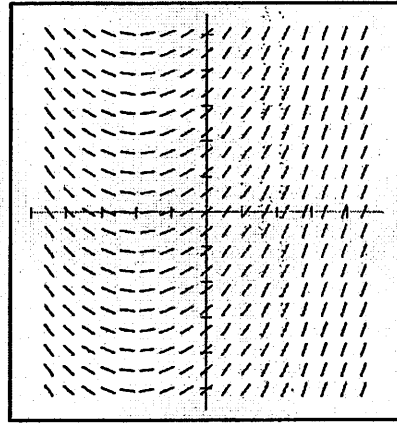
14.  $y=\ln|x|$  G

Match the slope fields with their differential equations. (Hint: If you can, first solve the differential equation—then look for that family of curves.)

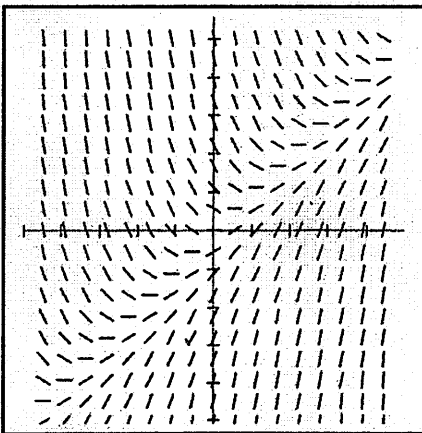
(A)



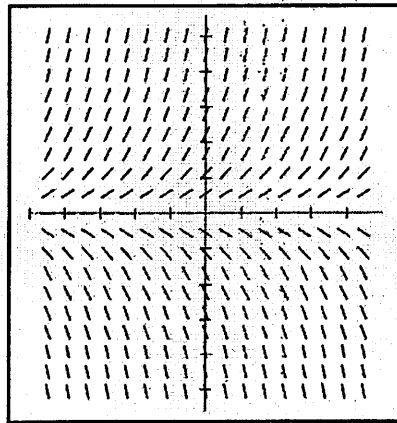
(B)



(C)



(D)



15.  ~~$\frac{dy}{dx} = x + 2$~~   $\frac{dy}{dx} = x + 2$  (B)

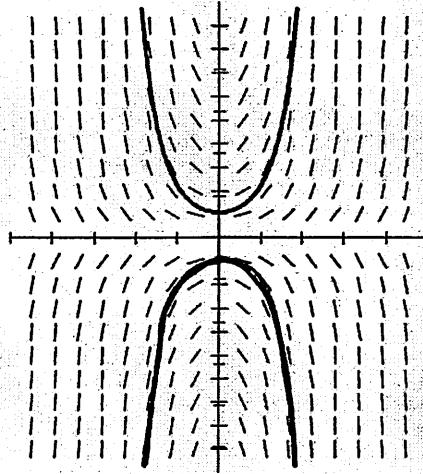
16.  $\frac{dy}{dx} = y$  (D)

17.  $\frac{dy}{dx} = x - y$  (C)

18.  $\frac{dy}{dx} = -\frac{x}{y}$  (A)

19. The slope field for the differential equation  $\frac{dy}{dx} = xy$  is shown below. The solution curve passing through the point  $(0,1)$  is also shown.

- (a) Sketch the solution curve through the point  $(0,2)$ .
- (b) Sketch the solution curve through the point  $(0,-1)$ .



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

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

