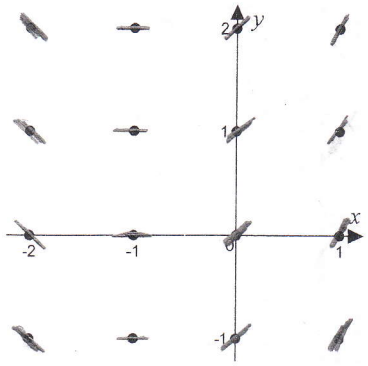
AP CALCULUS (AB)
Supplement 9.3 ~~9.3~~ 9.2
Slope Fields

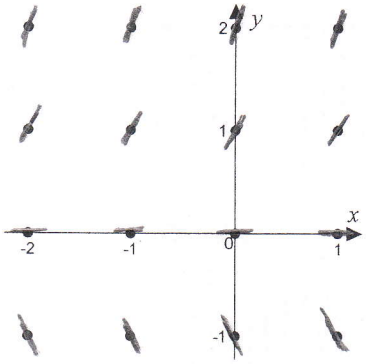
Name _____
Date _____
Period _____

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

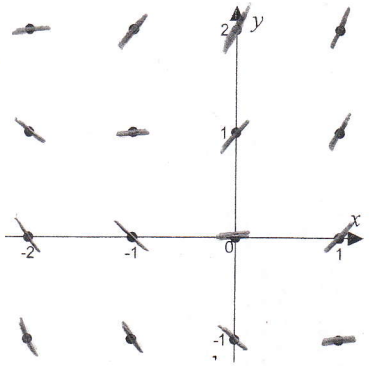
1. $\frac{dy}{dx} = x+1$



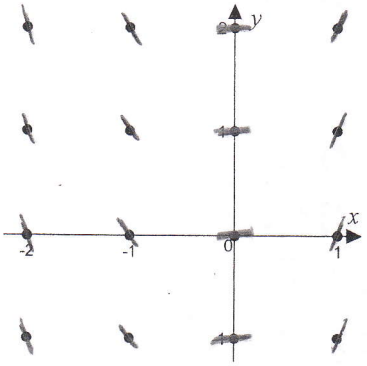
2. $y' = 2y$



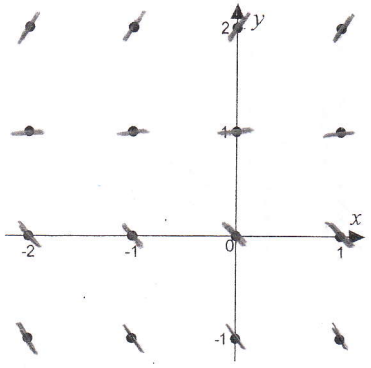
3. $y' = x+y$



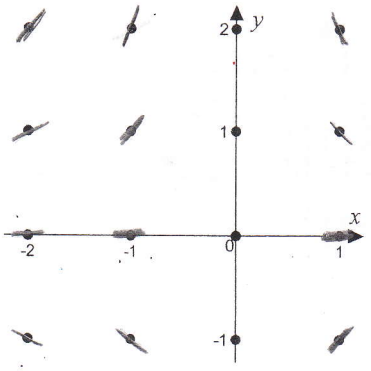
4. $\frac{dy}{dx} = 2x$



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



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



when $x=0$
$\frac{dy}{dx}$ is undefined

Match each slope field with the function that it could represent.

7. $y = 1$ (D)

8. $y = x$ (H)

9. $y = x^2$ (C)

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

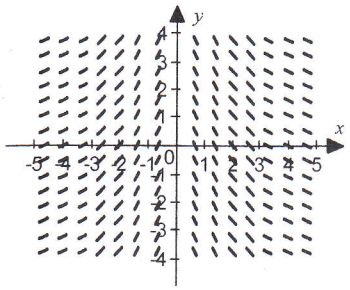
11. $y = \frac{1}{x^2}$ (A)

12. $y = \sin x$ (E)

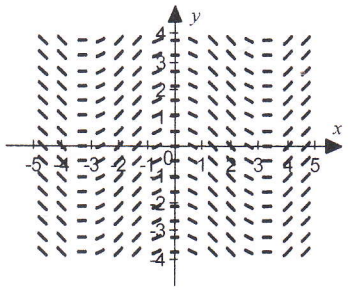
13. $y = \cos x$ (B)

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

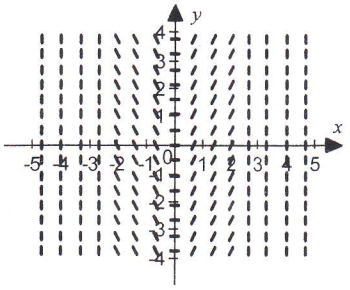
A.



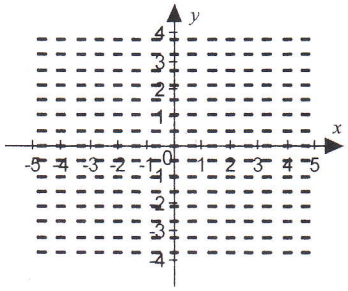
B.



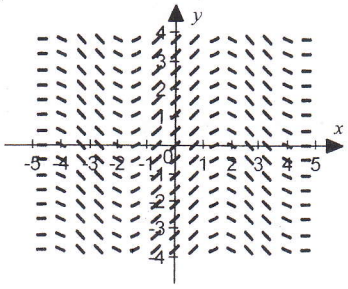
C.



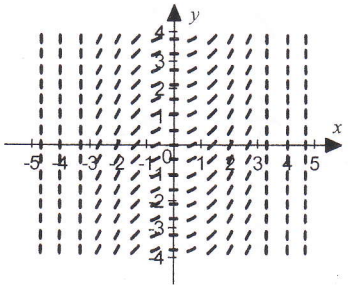
D.



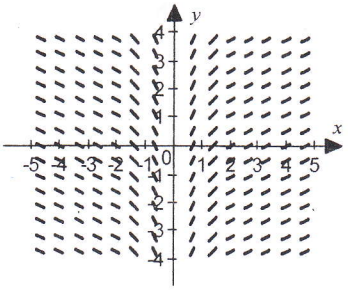
E.



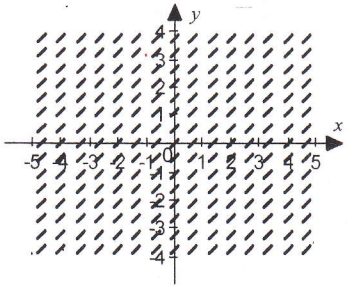
F.



G.



H.



Match each slope field with the appropriate differential equation.

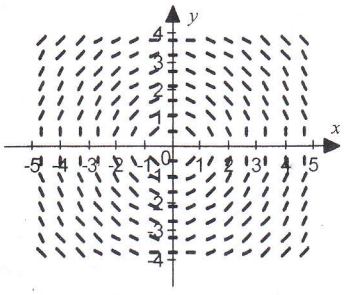
15. $\frac{dy}{dx} = \frac{1}{2}x + 1$ B

16. $y' = x - y$ C

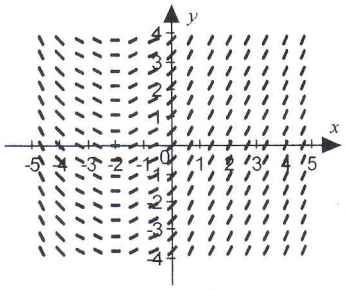
17. $y' = y$ D

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

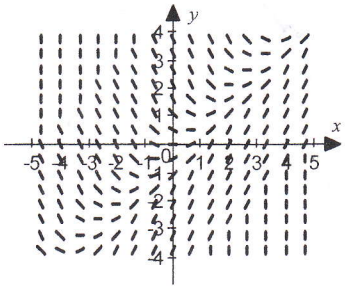
A.



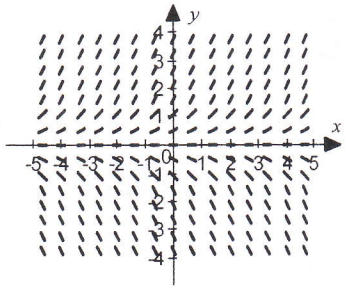
B.



C.

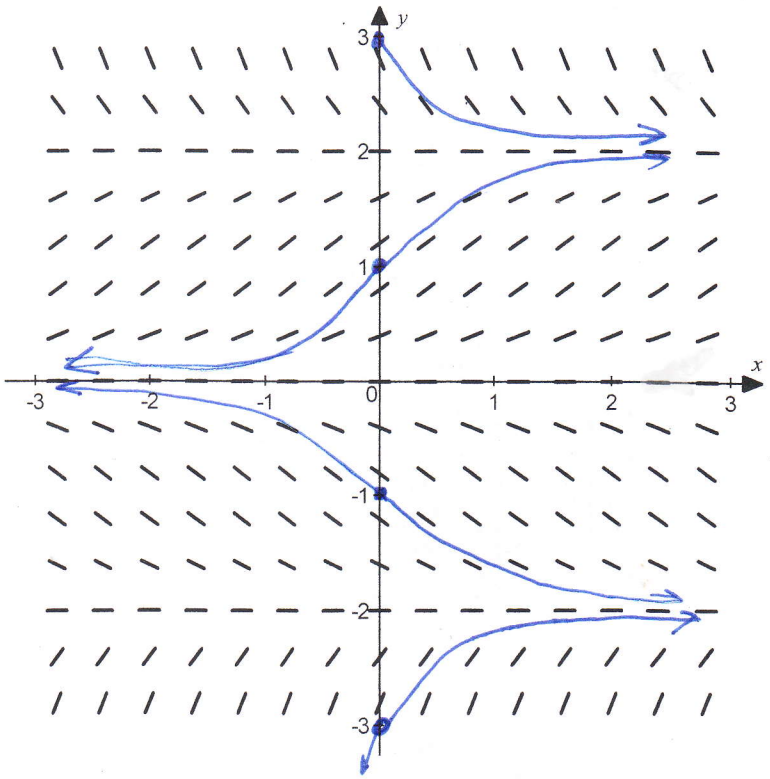


D.



19. The slope field for the differential equation $y' = y\left(1 - \frac{1}{4}y^2\right)$ is given below.

a. Sketch the graphs of the solution curves that satisfy the initial conditions $y(0) = -3$, $y(0) = -1$, $y(0) = 1$, and $y(0) = 3$.



b. Identify all equilibrium solutions for y.

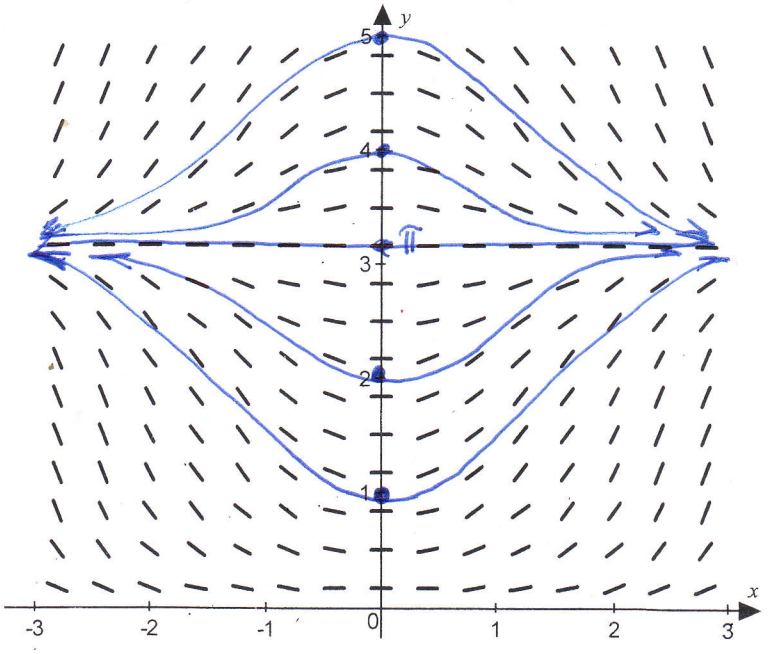
$y = 2$

$y = 0$

$y = -2$

20. The slope field for the differential equation $y' = x \sin y$ is given below.

a. Sketch the graphs of the solution curves that satisfy the initial conditions $y(0) = 1$, $y(0) = 2$, $y(0) = \pi$, $y(0) = 4$ and $y(0) = 5$.



b. Identify all equilibrium solutions for y.

$y' = x \sin y = 0$

$x \neq 0$ $\sin y = 0$

Not Eq. Sol

$y = \sin^{-1}(0)$

$= 0, \pi, 2\pi \ldots$

$y = n\pi$