

Slope Field Practice

① This is a slope field for which of the following differential equations?

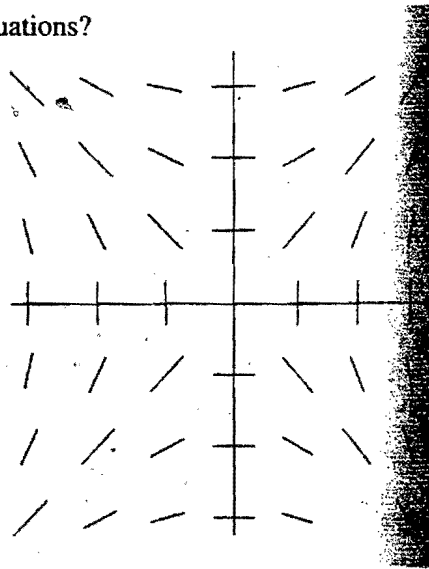
(A) $\frac{dy}{dx} = xy$

(B) $\frac{dy}{dx} = \frac{x^2}{y}$

(C) $\frac{dy}{dx} = x^2y$

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

(E) $\frac{dy}{dx} = \frac{x}{y}$



② This is a slope field for which of the following differential equations?

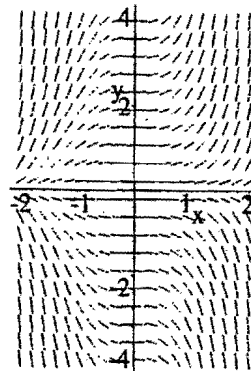
(A) $\frac{dy}{dx} = xy^2$

(B) $\frac{dy}{dx} = xy$

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

(D) $\frac{dy}{dx} = \frac{x^2}{y}$

(E) $\frac{dy}{dx} = x^2y$



③ The slope field shown at the right is for the differential equation

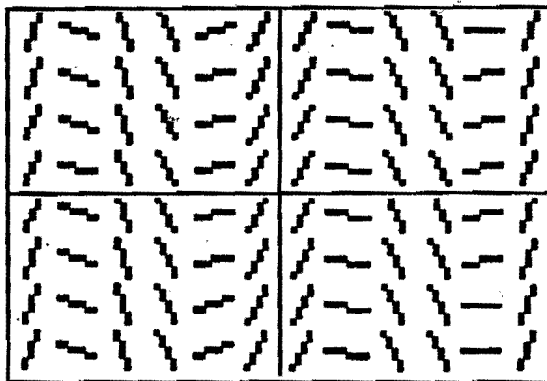
(A) $y' = x + 1$

(B) $y' = \sin x$

(C) $y' = -\sin x$

(D) $y' = \cos x$

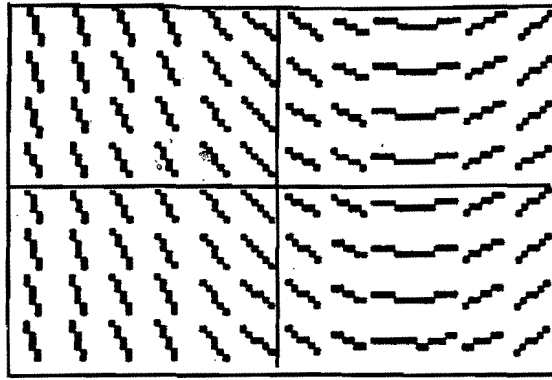
(E) $y' = -\cos x$



$[-2\pi, 2\pi] \times [-1.5, 1.5]$

4 The slope field at the right is for the differential equation

- (A) $y' = 2x$
- (B) $y' = 2x - 4$
- (C) $y' = 4 - 2x$
- (D) $y' = y$
- (E) $y' = x + y$

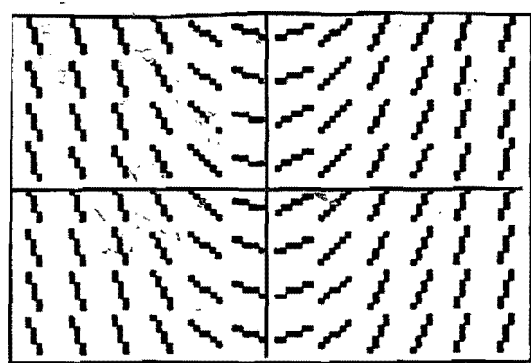


$[-4, 4] \times [-12, 12]$

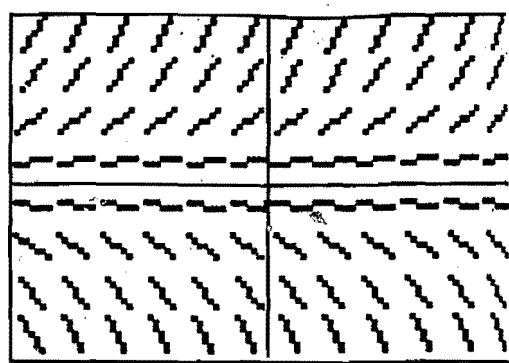
5 The solution curve of $y' = y$ that passes through point (2,3) is

- (A) $y = e^x + 3$
- (B) $y = \sqrt{2x + 5}$
- (C) $y = 0.406e^x$
- (D) $y = e^x - (e^2 + 3)$
- (E) $y = e^x / (0.406)$

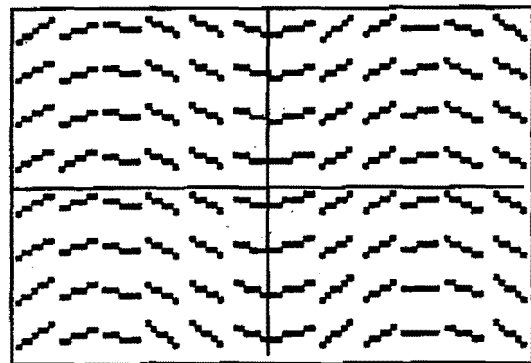
Use the graphs of
 I-V for
 # 6-10. Each
 is used only once



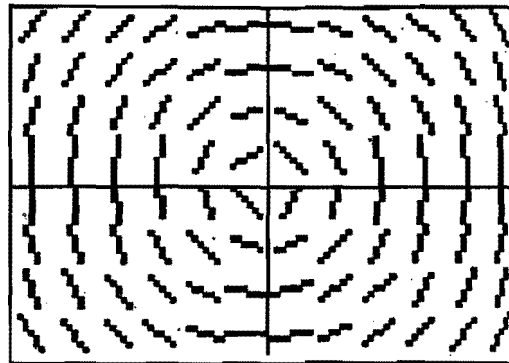
I $[-3, 3] \times [-3, 3]$



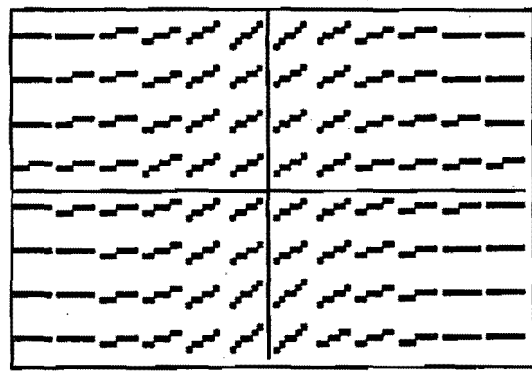
II $[-3, 3] \times [-3, 3]$



III $[-5, 5] \times [-5, 5]$



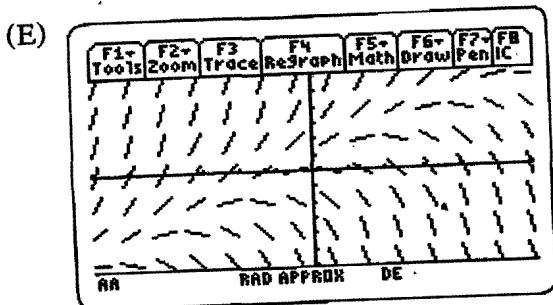
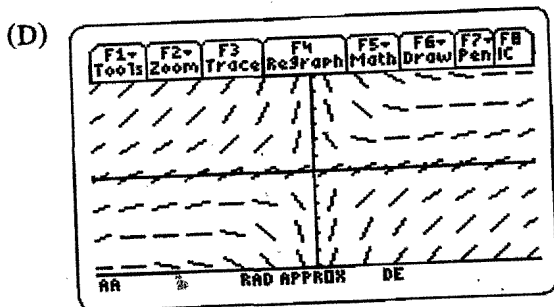
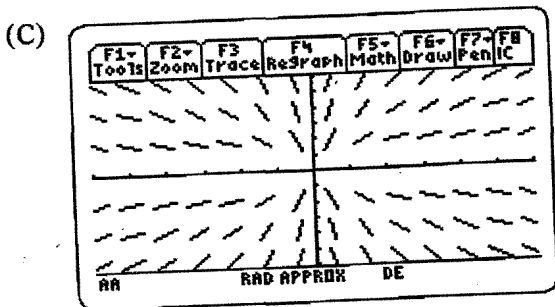
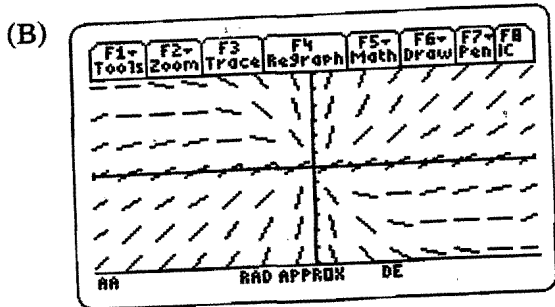
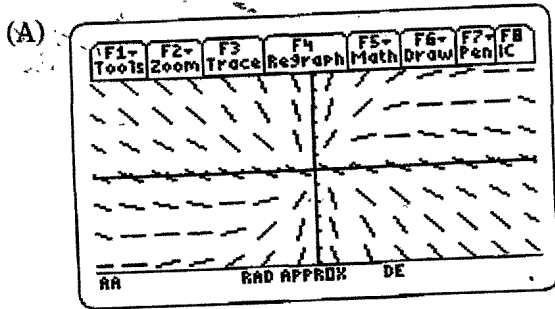
IV $[-3, 3] \times [-3, 3]$



V $[-2, 2] \times [-2, 2]$

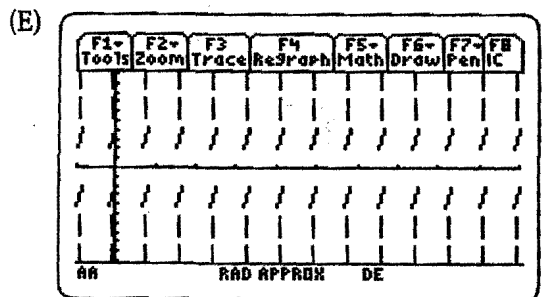
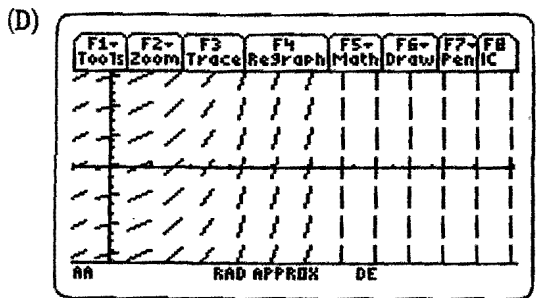
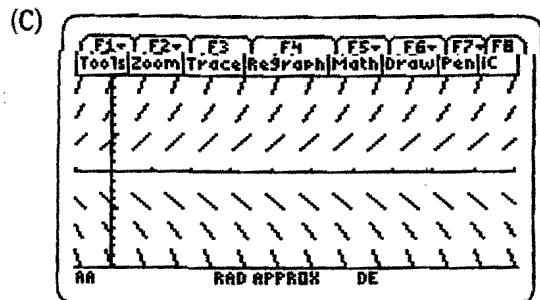
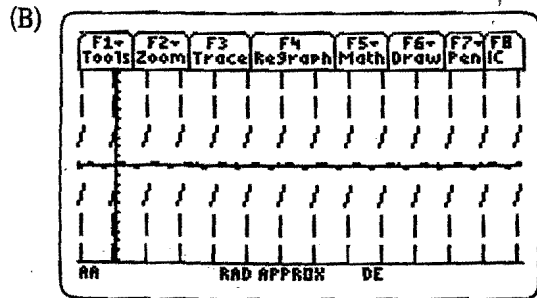
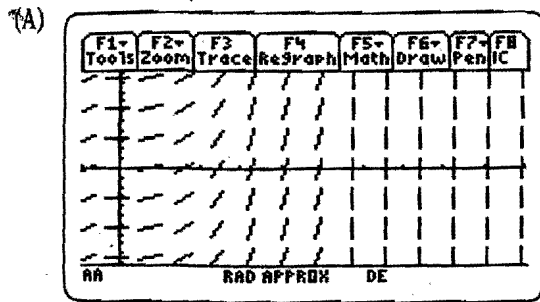
- 6 Which slope field is for the differential equation $y' = y$?
 (A) I (B) II (C) III (D) IV (E) V
- 7 Which slope field is for the differential equation $y' = -\frac{x}{y}$?
 (A) I (B) II (C) III (D) IV (E) V
- 8 Which slope field is for the differential equation $y' = \sin x$?
 (A) I (B) II (C) III (D) IV (E) V
- 9 Which slope field is for the differential equation $y' = 2x$?
 (A) I (B) II (C) III (D) IV (E) V
- 10 Which slope field is for the differential equation $y' = e^{-x^2}$?
 (A) I (B) II (C) III (D) IV (E) V

Which of the following is the slope field for the differential equation $x \frac{dy}{dx} = y - x$?

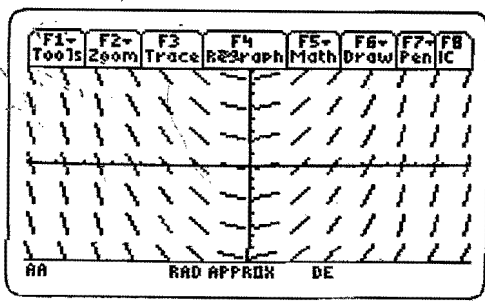


(2)

Which graph shows a slope field with a solution to the differential equation $\frac{dy}{dx} = y^2$?



13) Which of the following could be a solution of the differential equation with the given slope field?

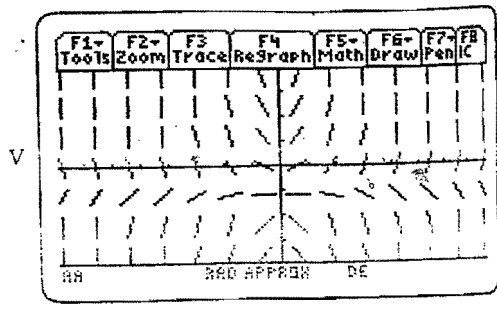


- (A) $y = x + 1$
- (B) $y = x^2 + 2$
- (C) $y = x^3 - 2$
- (D) $y = \ln(x + 1)$
- (E) $y = 2e^x$

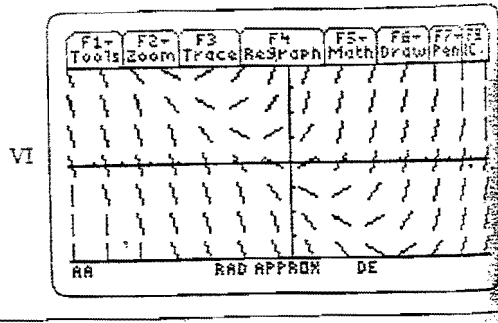
NO CALCULATOR

Differential Equation	Slope Field
14) $\frac{dy}{dx} = x + xy^2$	I
15) $\frac{dy}{dx} = -\frac{x}{y}$	II
16) $\frac{dy}{dx} = -y + 1$	III
17) $\frac{dy}{dx} = \frac{y^2}{x}$	IV

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



$$\frac{dy}{dx} = x + xy$$



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In a slope field, the line segments are

- (A) part of the graph of the solution to the differential equation
- (B) parts of the lines tangent to the graph of the solution to the differential equation
- (C) asymptotes to the graph of the solution of the differential equation
- (D) lines of the symmetry of the graph of the solution to the differential equation
- (E) none of the above

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- (A) provides a way of visualizing the solution to a differential equation
- (B) can help find horizontal asymptotes to the graph of the solution of the differential equation
- (C) can serve as a check to the solution of a differential equation

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The slope field for the differential equation

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

- (A) has line segments symmetric to the y-axis
- (B) shows that the solutions to the differential equation are odd functions
- (C) shows that the solutions to the differen-

- (D) can give evidence as to the symmetry of the graph of the solution to a differential equation
- (E) all of the above

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The slope field for the differential equation

$$\frac{dy}{dx} = x^2$$

- (A) has line segments symmetric to the y-axis
- (B) shows that the solutions to the differential equation are even functions
- (C) shows that the graphs of the solutions are increasing for increasing x
- (D) shows that the graphs of the solutions are decreasing for increasing x
- (E) shows that there are solutions that have a horizontal asymptote

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The slope field for $\frac{dy}{dx} = y$ shows that the solutions to the differential equation

- (A) have y-intercept (0, 1)
 - (B) have a positive y-intercept
 - (C) have a horizontal asymptote
 - (D) are even functions
 - (E) are odd functions
- (D) shows that the solutions to the differential equation are decreasing for increasing x
 - (E) shows that there is a horizontal asymptote