

## Slope Field Card Match

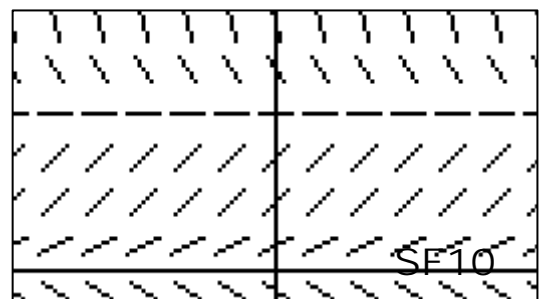
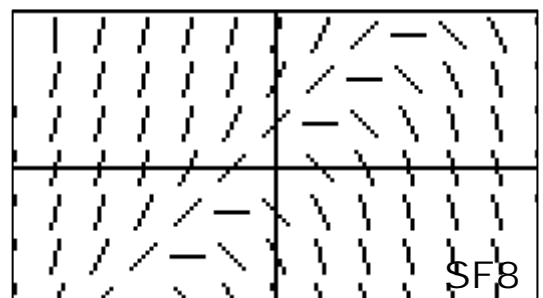
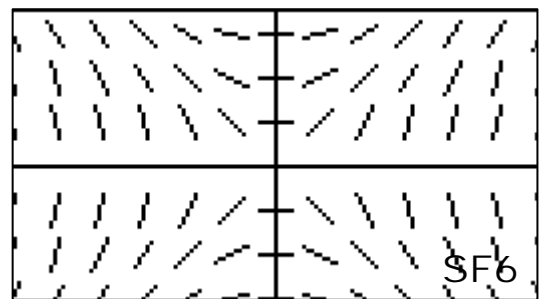
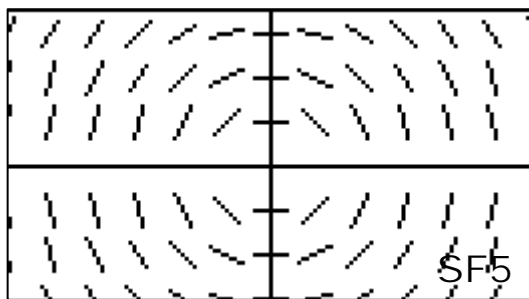
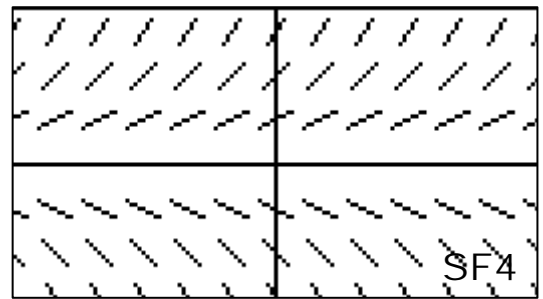
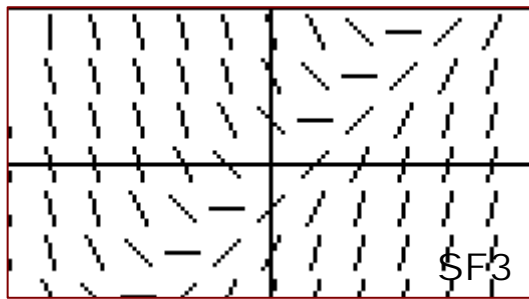
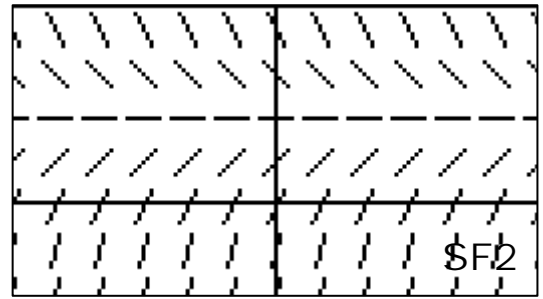
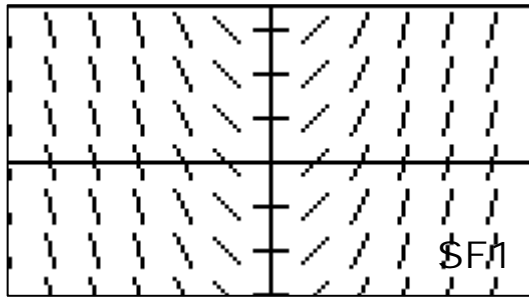
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Students will work in groups of two or three to match the three types of cards: slope field cards, differential equation cards, and conclusion cards. Each group will receive one set of cards and an answer sheet to record their answers. On the slope fields, each tick mark is one unit.

<b>Slope Fields</b>	<b>Differential Equations</b>	<b>Conclusions</b>
SF 1		
SF 2		
SF 3		
SF 4		
SF 5		
SF 6		
SF 7		
SF 8		
SF 9		
SF 10		



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

**DE1**

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

**DE2**

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

**DE3**

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

**DE4**

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

**DE5**

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

**DE6**

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

**DE7**

$$\frac{dy}{dx} = 0.25y(4 - y)$$

**DE8**

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

**DE9**

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

**DE10**

Solution curves  
are circles.

**C1**

The solution curve  
that passes through  
the point  $(0, -1)$  is the  
line  $y = x - 1$ .

**C2**

Solution curves  
are hyperbolas.

**C3**

The solution curve  
that passes through  
the point  $(-1, 0)$  is the  
line  $y = -x - 1$ .

**C4**

The solution curve that  
passes through the point  
 $(1, 1)$  has a local  
maximum at  $(1, 1)$ .

**C5**

Solution curves have  
horizontal asymptotes  
only at  $y = 0$  and have  
no vertical asymptotes.

**C6**

For  $0 < y < 4$ , solution  
curves are logistic and  
have two horizontal  
asymptotes.

**C7**

$$\lim_{x \rightarrow \infty} y = 2$$

**C8**

Solution curves have a  
vertical asymptote at  $x = 0$ .  
If  $y > 0$ , solution curves are  
concave up. If  $y < 0$ ,  
solution curves are  
concave down.

**C9**

Solution curves  
are parabolas.

**C10**

## Slope Field Card Match Solutions

<b>Slope Fields</b>	<b>Differential Equations</b>	<b>Conclusions</b>
SF 1	5	10
SF 2	9	8
SF 3	1	2
SF 4	7	6
SF 5	4	1
SF 6	2	3
SF 7	6	9 (or 3)
SF 8	3	5
SF 9	10	4
SF 10	8	7