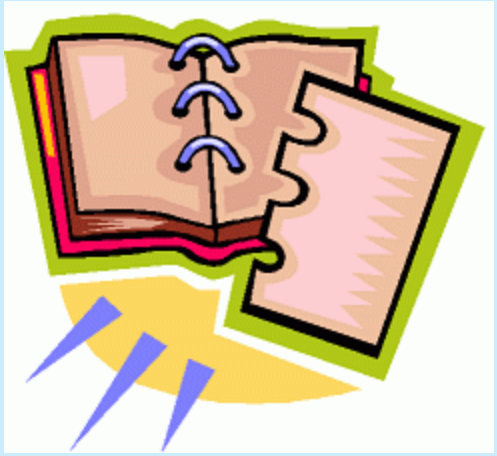
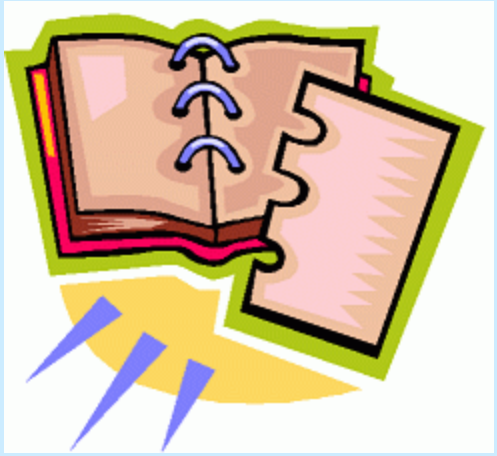
Arrival Instructions

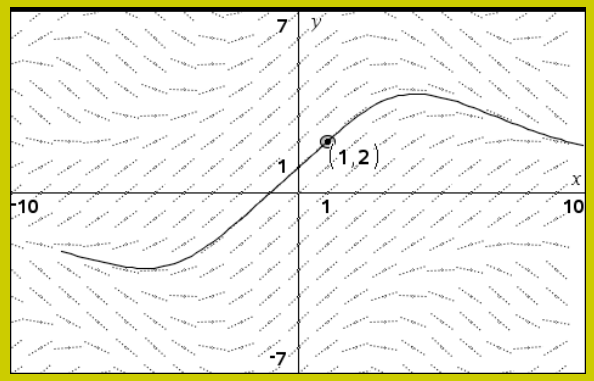


- Place Break Assignment on front desk by door (make sure your name is on the front)
- Pick up a unit packet from front table
- On the board, write down main questions to focus on for review today (regarding break assignment)

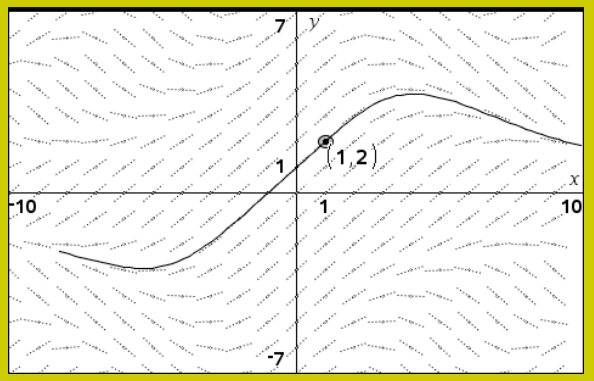
Today's Agenda



- Notes:
  - Review of slopefields and differential equations
- CW:
  - Card Matching Activity



Review Topic: Slopefields



- **What is a slopefield?**

  A tool used to visualize the characteristics of the solution to a differential equation without actually being able to integrate to find the solution

- **What do we have to be able to do?**

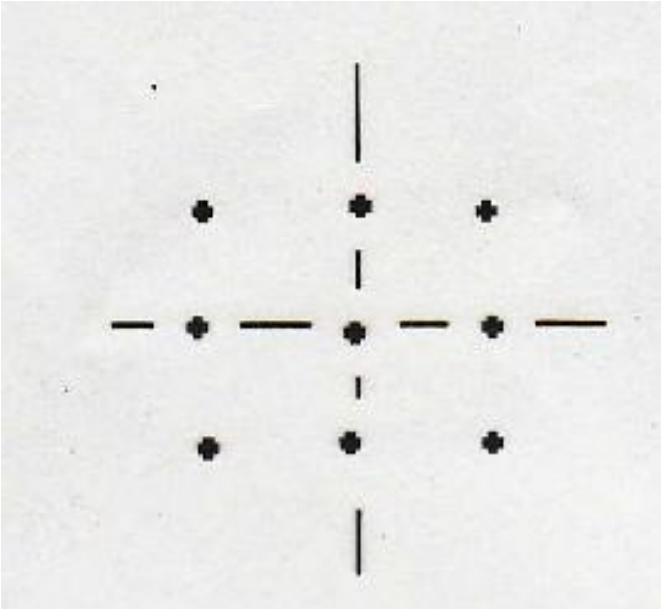
  Draw a slopefield

  Indicate a particular solution on a slopefield

  Match slopefields to derivatives

Draw the slopefield for the following differential equation

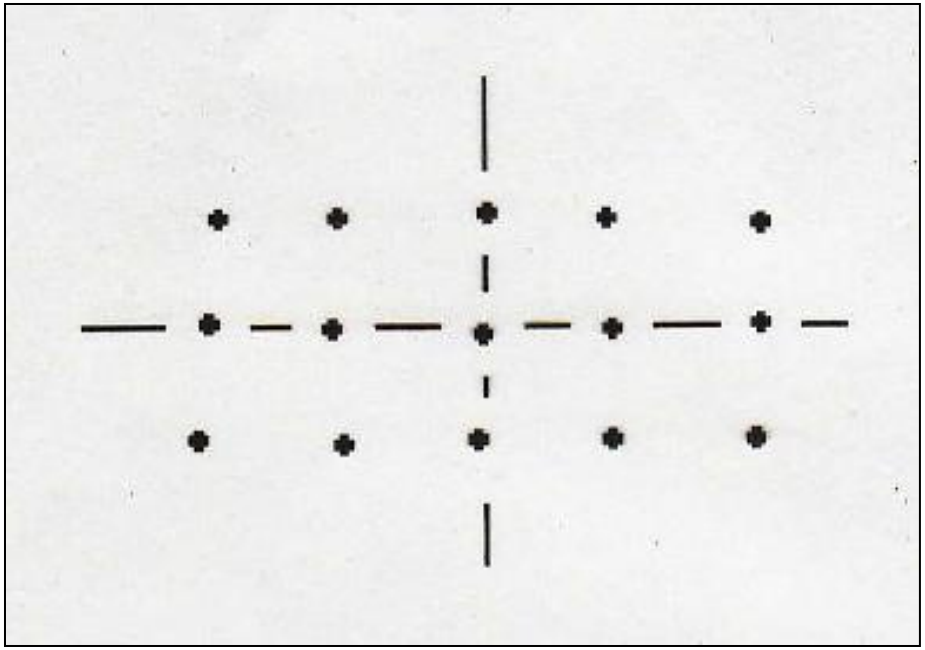
$$y' = 2x + y$$



Note:
It would not be possible to separate and integrate this differential equation to find a solution because it does not involve multiplication.

Drawing a Slopefield

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



Now solve for the general solution by separating and integrating.

THEN find the particular solution going through (e, -4)

More practice with separable differential equations.

$$y' = x^2 y \qquad y(0) = 2$$

Matching Slopefields to Differential Equations

- Strategies:
  - Look for zero slopes
  - Consider signs of slopes for each quadrant
  - Vertical Patterns: x only equation
  - Horizontal Patterns: y only equation
  - Consider what the solution set for the differential equation would look like

Card Matching Activity