

**AP<sup>®</sup> CALCULUS AB**  
**2008 SCORING GUIDELINES**

**Question 5**

Consider the differential equation  $\frac{dy}{dx} = \frac{y-1}{x^2}$ , where  $x \neq 0$ .

- (a) On the axes provided, sketch a slope field for the given differential equation at the nine points indicated.

(Note: Use the axes provided in the exam booklet.)

- (b) Find the particular solution  $y = f(x)$  to the differential equation with the initial condition  $f(2) = 0$ .

- (c) For the particular solution  $y = f(x)$  described in part (b), find  $\lim_{x \rightarrow \infty} f(x)$ .

