

## Warm-up Problems - February 27, 2006

Extra Credit?

(If my signature is here write down your name turn it in for extra credit. No signature? Arrive earlier!)

1. If  $C$  is a constant, find the derivative:

(a)  $y = -3x + \frac{C}{x}$

(b)  $y = \frac{x}{2} - 1 + \frac{C}{x}$

(c)  $y = -1 + Cx$

### Lecture Problems

2. Draw the slope field for the differential equations

(a)  $y' = y + 1$

(b)  $\frac{dy}{dx} = x + 1$

3. Verify that the given solutions are really solutions to the given differential equations.

(a)  $xy' + 1 = x - y$   
 $y = \frac{x}{2} - 1 + \frac{C}{x}$

(b)  $xy' = y + 1$   
 $y = -1 + Cx$

4. Given the general solutions, solve the initial value problem.

(a)  $xy' + 1 = x - y, y(1) = 2$   
 $y = \frac{x}{2} - 1 + \frac{C}{x}$

(b)  $xy' = y + 1, y(2) = 5$   
 $y = -1 + Cx$