

7. [5 points] Let

$$s(t) = \begin{cases} 5t^2 & \text{if } t \leq 3 \\ p + c(t - 3) & \text{if } t > 3 \end{cases}$$

be a differentiable function, where p and c are constants.

- a. [3 points] Find the values of p and c .

Answer: $p =$ _____ and $c =$ _____

- b. [2 points] Is $s'(t)$ differentiable at $t = 3$?

To receive any credit on this question, you must justify your answer.

8. [6 points] Find a formula for $\frac{dy}{dx}$ for the implicit function $ax^2 + xy^2 + b \ln y = c$.
The constants a , b , and c may appear in your answer.

Answer: $\frac{dy}{dx} =$ _____