ECE 278
Homework #2 problem 6 hint sign error

In the homework, a hint is given as:

$$\sum_{n=0}^{\infty} n \cdot a \cdot e^{-n \cdot a} = \left[\frac{d}{dy} \sum_{n=0}^{\infty} e^{-n \cdot a \cdot y} \right]_{y=1} = \left[\frac{d}{dy} \sum_{n=0}^{\infty} \left(e^{-a \cdot y} \right)^n \right]_{y=1} = \left[\frac{d}{dy} \left(\frac{1}{1 - e^{-a \cdot y}} \right) \right]_{y=1}$$

This is incorrect by a minus sign in the first equality. The correct hint is:

$$-\sum_{n=0}^{\infty} n \cdot a \cdot e^{-n \cdot a} = \left[\frac{d}{dy} \sum_{n=0}^{\infty} e^{-n \cdot a \cdot y} \right]_{y=1} = \left[\frac{d}{dy} \sum_{n=0}^{\infty} \left(e^{-a \cdot y} \right)^n \right]_{y=1} = \left[\frac{d}{dy} \left(\frac{1}{1 - e^{-a \cdot y}} \right) \right]_{y=1}$$