Homework 3.2: Equivalent expressions for Fokker-Planck

Equivalent expressions

2/2 points (graded)
Consider the two equations

$$\lambda^2 \frac{d^2}{dx^2} u(t, x) = \tau_m \frac{d}{dt} u(t, x) + u - r_m i^{ext}(t, x)$$

$$\frac{d^2}{d(x')^2} u(t', x') = \frac{d}{dt'} u(t', x') + u - r_m i^{ext}(t', x')$$

The two equations are equivalent under the transform $x' = cx$ and $t' = at$ with constants

- ⦿ $c = \frac{1}{\lambda}$
- ○ $c = \frac{1}{\lambda^2}$
- ○ $c = \frac{1}{\sqrt{\lambda}}$
- ○ $c = \lambda$
- ○ $c = \lambda^2$
- ○ $c = \sqrt{\lambda}$

✔

and

- ⦿ $a = \frac{1}{\tau_m}$
- ○ $a = \frac{1}{\tau_m^2}$
- ○ $a = \frac{1}{\sqrt{\tau_m}}$
- ○ $a = \tau_m$
- ○ $a = \tau_m^2$
- ○ $a = \sqrt{\tau_m}$

✔

Submit   You have used 1 of 1 attempt

✔ Correct (2/2 points)

Discussion

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