When is a linear differential equation *homogeneous?*

Recall the **linearity principle**: *when y is a solution of a linear homogeneous equation and c is a constant then cy is also a solution.* Well ...

<div align="center">

A linear DE is homogeneous

IF AND ONLY IF

the linearity principle holds for that linear DE.

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The equation

$$y' + \frac{1}{t}y = 0$$

is linear homogeneous (start by making sure you know why it is *linear!*), and the equation

$$y' + \frac{1}{t}y = t$$

is linear but not homogeneous. Try to prove each fact.

(HINT: What happens if you multiply each side by a constant c?)