

**Putting it all together**

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Consider the following IVP:

$$\frac{dy}{dt} = ty \text{ where } y(0) = 3.$$

Your goal is to find (either approximately or exactly) the value of  $y$  when  $t = 1$ . Do this in as many ways as possible (you should be able to think of AT LEAST THREE DIFFERENT WAYS), showing your work and explaining your methods clearly. For any recursive process you use, you should carry out at least 4 iterations.