Part 1 (25%): Solve the following differential equation for $y(x)$ by direct integration:

$$y' - 2y = 0$$

Part 2 (75%): Find a series solution to the same problem as part 1 above using a Taylor series expansion of the trial solution $y = \sum a_n x^n$. The following may be useful to check your answer:

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}.$$