1.) (5 pts.) Use the formula we discussed in class (also known as Theorem 14) to solve the IVP \( y' = 0.1y \), \( y(0) = 100 \).

To solve \( y' = ky \), \( y(0) = A \), use

\[
y = A e^{kt}.
\]

Here: \( k = 0.1 \), \( A = 100 \), so

\[
y = 100 e^{0.1t}.
\]

2.) (5 pts.) How did we define the number \( e \)?

\( e \) is the number for which,

\[
\text{if } f(x) = e^x, \text{ then } f'(0) = 1.
\]