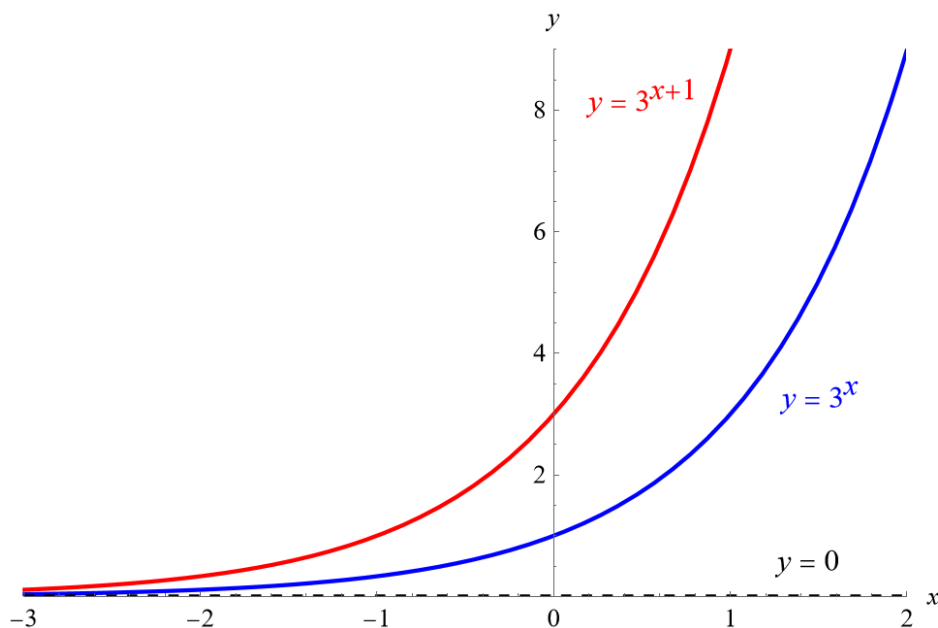## Exercise 241

For the following exercises, sketch the graph of the exponential function. Determine the domain, range, and horizontal asymptote.

$$f(x) = 3^{x+1}$$

Solution

Draw the parent function $y = 3^x$ and then draw the transformation $y = 3^{x+1}$. Changing from x to $x + 1$ shifts the whole graph to the left by 1 unit.

$$
\begin{aligned}
\text{Domain} &: && \{x \mid -\infty < x < \infty\} \\
\text{Range} &: && \{y \mid 0 < y < \infty\} \\
\text{Horizontal Asymptote} &: && y = 0
\end{aligned}
$$