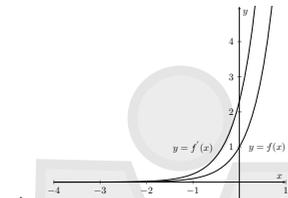
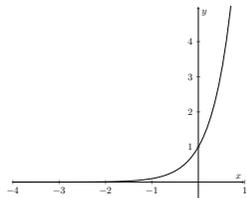


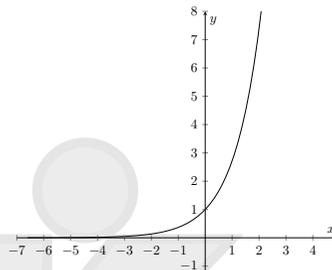
## DERIVATIVE GRAPH OF EXPONENTIAL FUNCTIONS:

The graph on the left is the exponential function  $y = 10^x$ .

The gradient of  $y = 10^x$  is positive but getting steeper, so the graph of its gradient/derivative function is steeper than  $y = 10^x$ .



There is an exponential function for which its gradient function is the same as the original function, and that is the function  $y = e^x$ .



When drawing derivative graphs, take note of:

- when the graph is increasing (derivative graph is positive)
- when the graph is decreasing (derivative graph is negative)
- a turning point or horizontal point (derivative graph has value of zero)

### 7.3 WORKED EXAMPLE

Draw the derivative graph over the exponential function provided.

