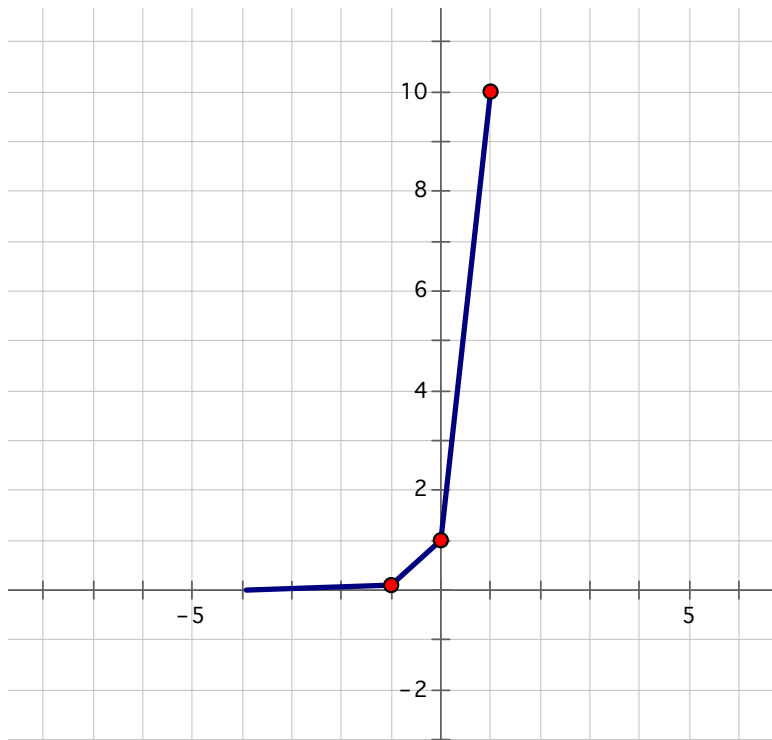


## Graphing Exponentials of the form $y = b^x$ , $b > 1$

If I were to ask you to graph an exponential equation in two variables such as  $y = 10^x$ , my guess is you'd construct an x-y chart, plug in convenient values of x and find the corresponding values of y.

**Example**                  **Graph  $y = 10^x$**

<b><u>x</u></b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>y</b>	<b>1/1000</b>	<b>1/100</b>	<b>1/10</b>	<b>1</b>	<b>10</b>	<b>100</b>	<b>1000</b>



If I were to graph enough of these equations, we would begin to see an exponential equation of the form,  $y = b^x$ , all look pretty much the same when  $b \geq 1$ .

**All the graphs would go through the point  $(0, 1)$ , they would slide down to the left getting closer and closer to the x-axis but never touching it. The values of  $y$  are always positive no matter what values of  $x$  are chosen! If  $x = 5$ , then  $y = 10^5$  or 100,000. If  $x = -5$ , the  $y = 10^{-5}$  which is  $1/10,000$ .**

## Example

## Graph $y = 2^x$

Let  $x$  equal  $-3, -2, -1, 0, 1, 2, 3$  and find the corresponding values of  $y$ . then plot those points

