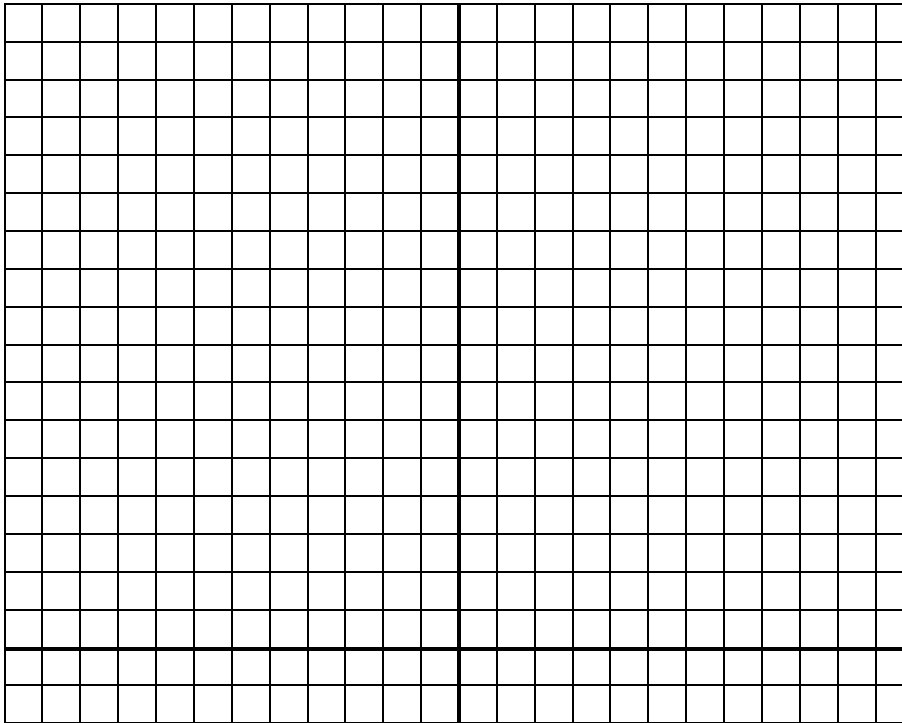$$y = c^x$$

Complete the table of values for $y = c^x$ when $c = 2$. Express y values in fraction form.
Then plot the points accurately on the grid provided. Use an appropriate scale on the y-axis.

x	y
-5	
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	
5	

Use your calculator to graph $y = 2^x$ using this window:

x_{min} = -5

x_{max} = 5

x_{scl} = 1

y_{min} = -2

y_{max} = 34

y_{scl} = 2

Use the graph on your calculator to help you complete the graph you started above.

$y = 2^x$ is an **exponential** function. Write down the characteristics of the graph.

Horizontal asymptote: _____

Domain: _____

Range: _____

x-intercept: _____

y-intercept: _____

Now try to graph a few different exponential functions on your calculator:

1. Use values of $c > 2$. Summarize.

2. Use values of $1 < c < 2$. Summarize.

3. Use values of $0 < c < 1$. Summarize.

4. What if $c = 1$ or $c = 0$?

5. What if $c < 0$? Explore specifically $y = (-2)^x$. Check out the table of values too.
Use ΔTbl=0.5. Take note when x is even, odd, or rational such as $^1/_2$. Explain.

6. Graph $y = 2^{-x}$. Which case above is equivalent? Why?

7. Graph $y = -2^x$. Notice all of the main characteristics.

8. Certain exponential functions represent **growth**. What values for c are these?

9. Certain exponential functions represent **decay**. What values for c are these?

Go through example 3 on page 340-341. Read Key Ideas on page 342.

Do pg. 342-345 #1-8, 10-12, 15, C2