Comparison of Functions (Section 3.5) NAMES:

Turn in one paper per group but be sure all members of the group have seen the final answers. Circle your name if the paper that gets turned in is your copy.

1. We will investigate how a function's formula affects the graph. Complete the tables for the following functions. (Remember that a negative number raised to an even exponent gives a positive answer.)

x	-4	-3	-2	-1	0	1	2	3	4
$y = x$									

x	-4	-3	-2	-1	0	1	2	3	4
$y = x^2$									

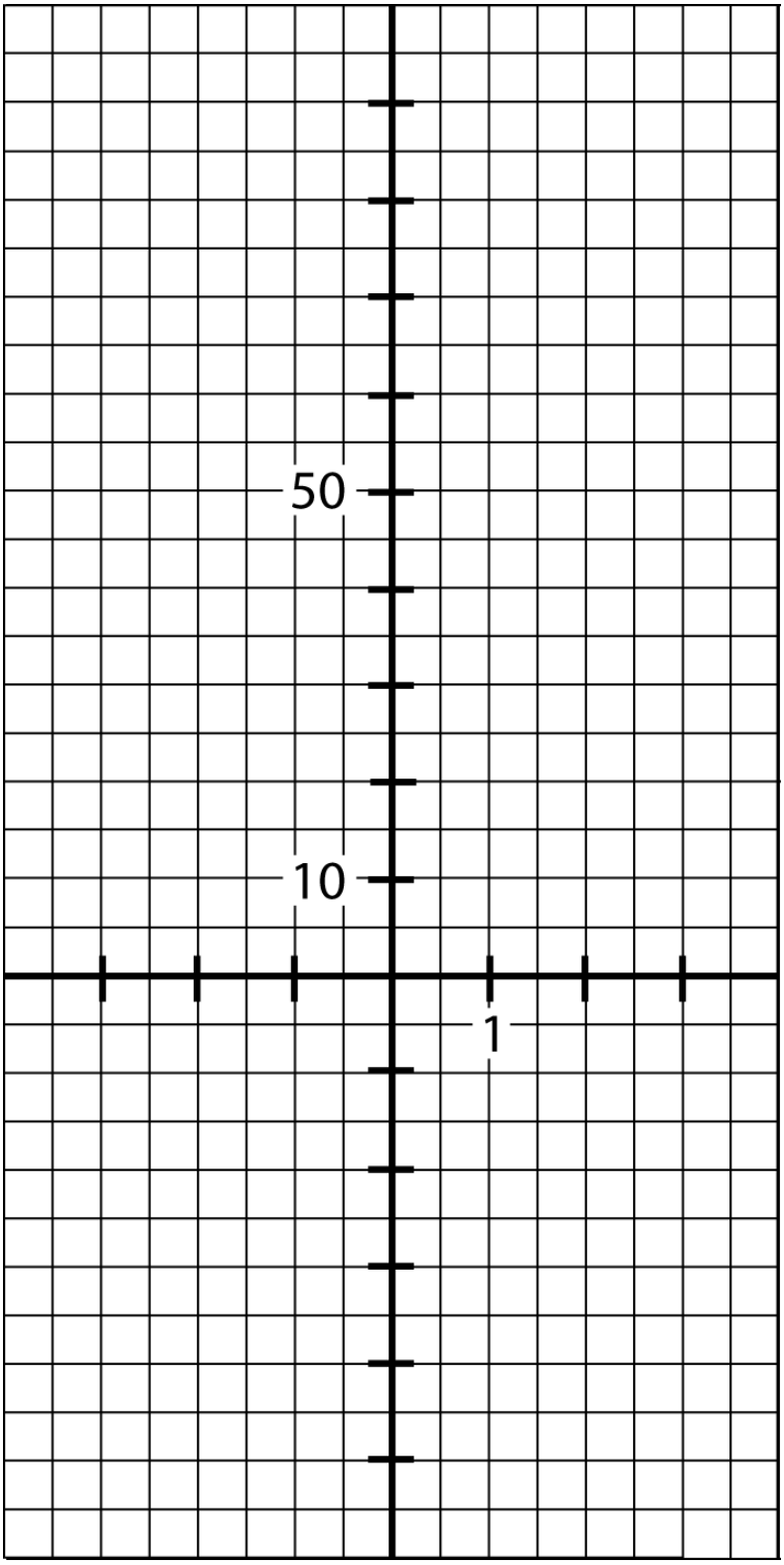
x	-3	-2	-1	0	1	2	3	4
$y = x^3$								

x	-3	-2	-1	0	1	2	3
$y = x^4$							

2. Which functions have negative *y*-values? How will those negative values show up in the graph?

3. Which function's *y*-values form an arithmetic sequence? What will that mean for its graph?

4. Graph all four functions on the plane below. Draw arrows at the ends of the graphs to indicate they go on forever.



5. Which functions are curves and which are straight lines?

6. Which graph rises the quickest? Why do you think that is?

7. Which graphs have points below the x-axis? Why do you think that is?

8. Without calculating values and plotting points, which of the following graphs do you think would have points below the x-axis? Explain.

a.) $y = x^5$

b.) $y = x^6$

c.) $y = x^7$