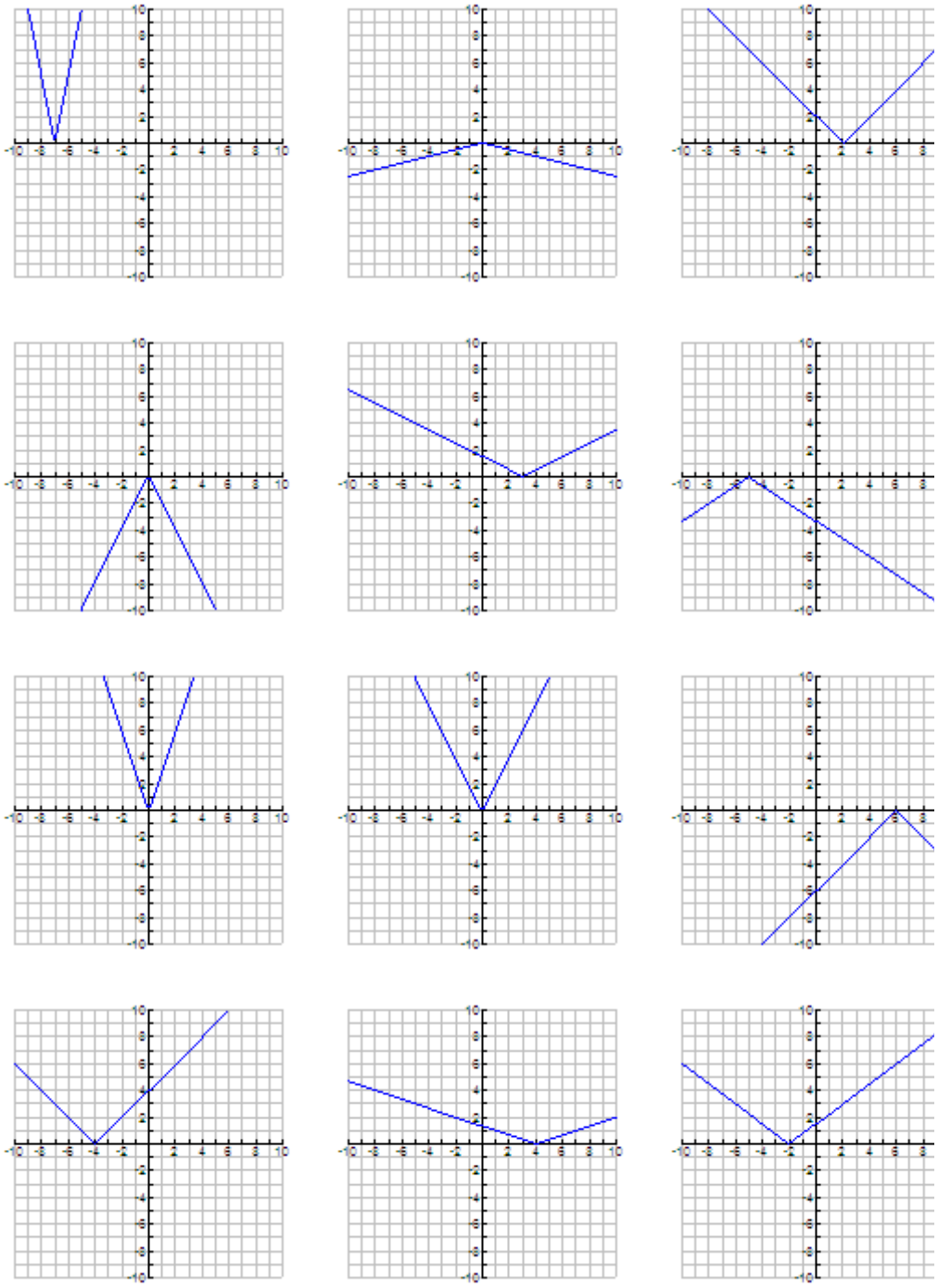
GRAPHING ABSOLUTE VALUE Name: _____

When done with this activity, you should be able to graph simple absolute value functions by hand.

Part A: Using your calculator as needed, match each equation to its graph.

1. $d(t) = |t - 2|$
2. $f(x) = |x + 4|$
3. $r(t) = -2|t|$
4. $f(x) = 3|x|$
5. $y = 2|x|$
6. $y = 5|x + 7|$
7. $T(n) = -\frac{2}{3}|n + 5|$
8. $C(h) = \frac{1}{2}|h - 3|$
9. $P(n) = -|n - 6|$
10. $g(x) = \frac{1}{3}|x - 4|$
11. $f(x) = -\frac{1}{4}|x|$
12. $f(x) = \frac{3}{4}|x + 2|$



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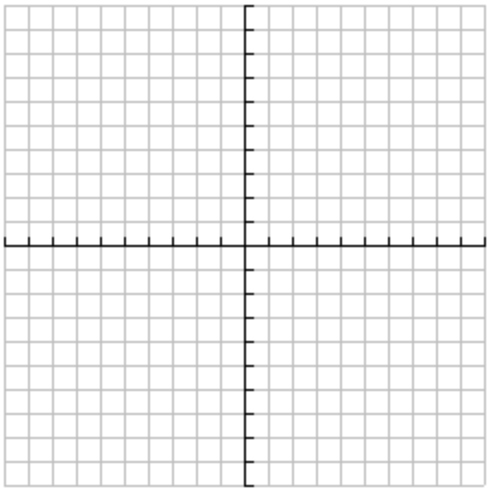
Part B: Look carefully at absolute value graphs.

1. Try to make a high quality graph of the function $f(x)=\frac{1}{2}|x-3|$.



(Using your calculator to check when you're done.)

a. What's the slope of each piece of your graph?

b. Where's the **vertex** (the place where your graph changes slope)?

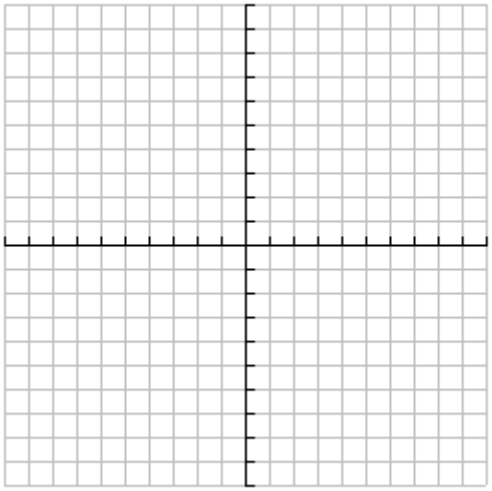
c. Using your calculator if needed, complete this table showing how this function changes.

x	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
y													

- Explain how you can see the "vertex" in the table.

- Explain how you can see the slope of each piece in the table.

2. Try to make a high quality graph of the function $f(x)=-2|x+3|$.



(Using your calculator to check when you're done.)

a. What's the slope of each piece of your graph?

b. Where's the **vertex** (the place where your graph changes slope)?

c. Using your calculator if needed, complete this table showing how this function changes.

x													
y													

- Explain how you can see the slopes and the vertex in the table.

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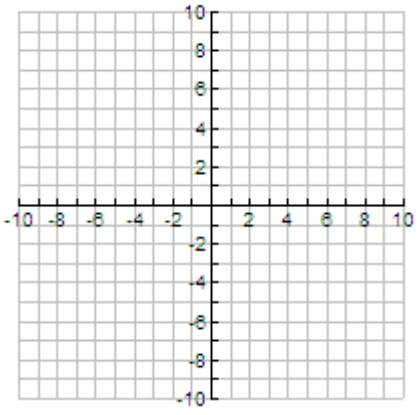
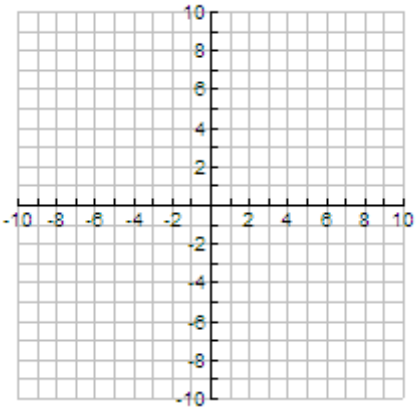
Part C: Graph each of the following equations *without* using a calculator.

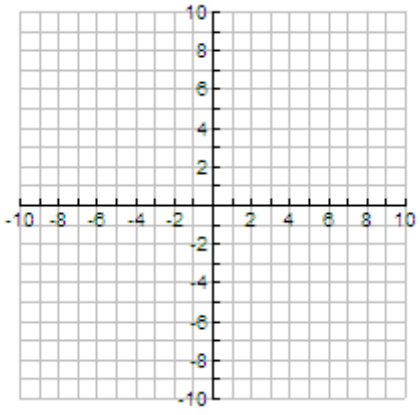
1. $f(x)=2|x|$



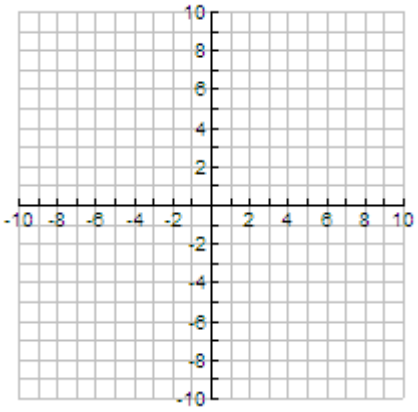
2. $f(x)=-3|x|$



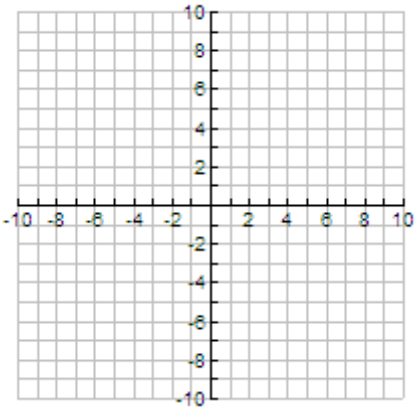
3. $f(x)=\frac{1}{2}|x|$



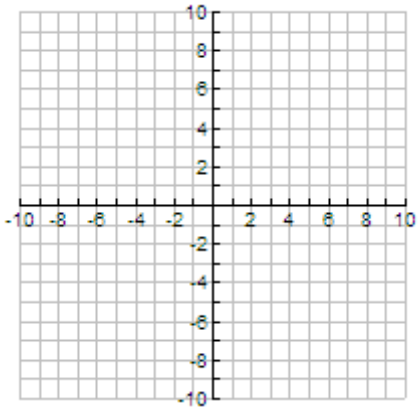
4. $f(x)=|x-3|$



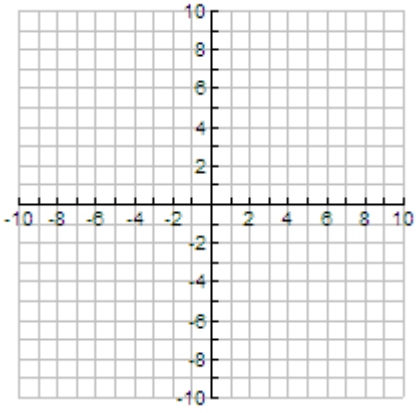
5. $f(x)=|x+5|$



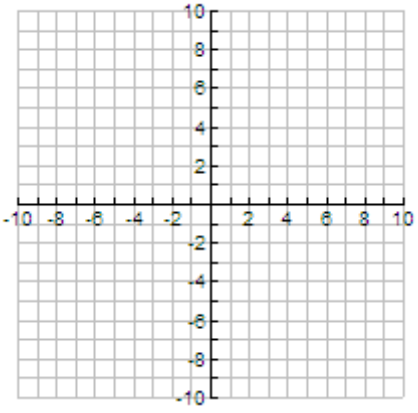
6. $f(x)=|x-7|$



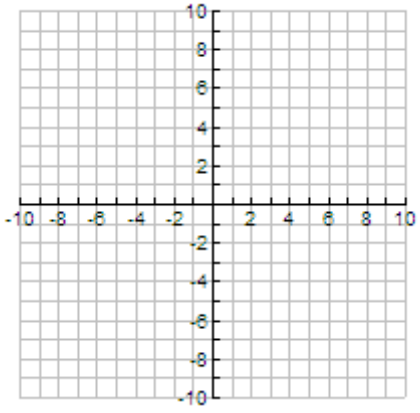
7. $f(x)=-2|x+4|$



8. $f(x)=\frac{1}{3}|x-5|$



9. $f(x)=-\frac{2}{5}|x+2|$



10. How can you find where the vertex is just from looking at the absolute value equation?

11. From an absolute value equation how can you tell what the slope of your pieces will be?

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