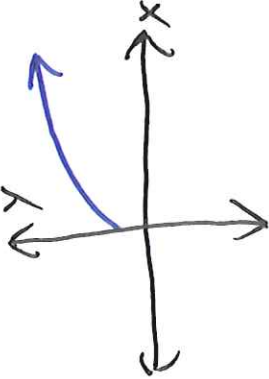
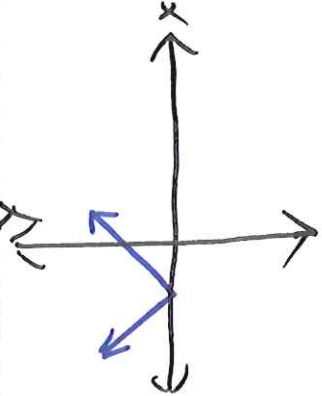
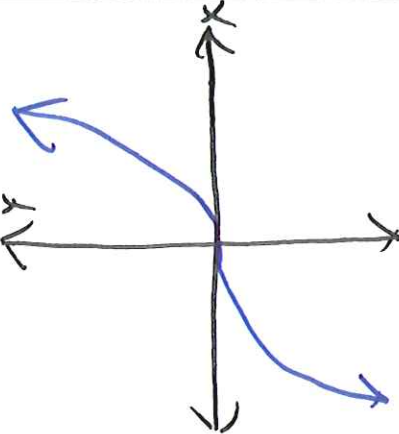
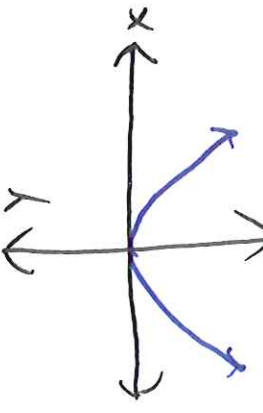
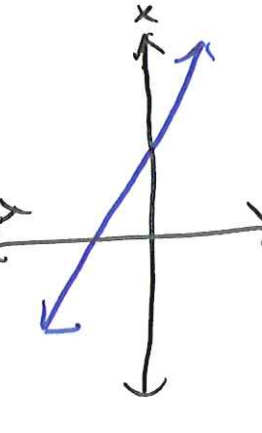
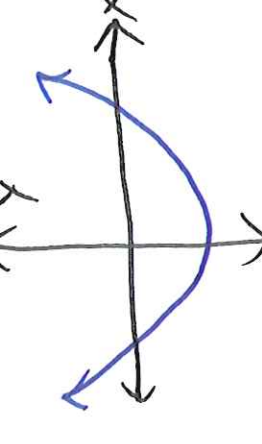
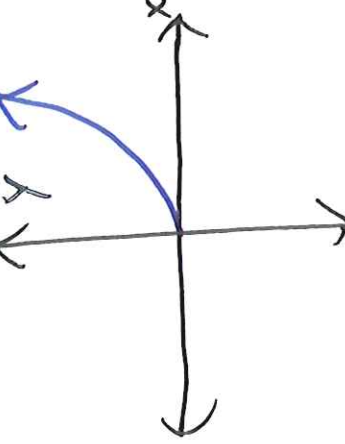


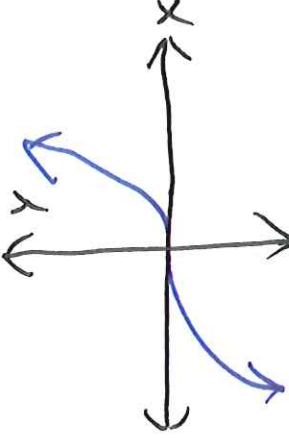
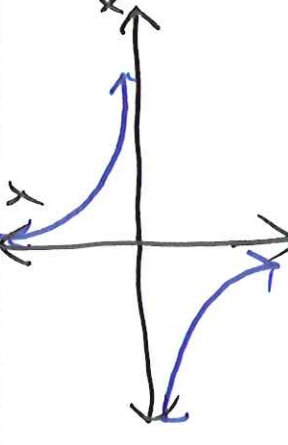
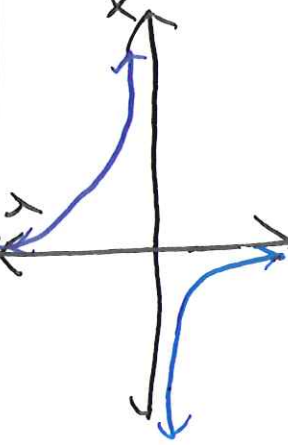
Name: Key

Families of Functions Rules Activity Continued

From the "Rules" Worksheet record each problem in the table below.

| Write the Equation | Sketch the Graph | What do you notice about this graph? |
|--------------------------|---|---|
| 1. $y = \sqrt{x} + 2$ |  | "half a curve" only in Q1 & Q4 because $x \neq \text{negative}$. |
| 2. $y = x + 2 $ |  | "V-shaped" |
| 3. $y = x^3$ |  | "slides through" |

| Write the Equation | Sketch the Graph | What do you notice about this graph? |
|---------------------|---|--------------------------------------|
| 4. $y = -x^2$ |  | <p>looks like a "rainbow"</p> |
| 5. $y = -2x + 5$ |  | <p>straight line</p> |
| 6. $y = x^2 - 6$ |  | <p>looks like a letter "U"</p> |
| 7. $y = 3^x$ |  | <p>"half a U"</p> |

| Write the Equation | Sketch the Graph | What do you notice about this graph? |
|---------------------------|--|--|
| 8. $y = x^3 + 2$ |  | <p>"Slides through"</p> |
| 9. $y = \frac{10}{x}$ |  | <p>"2-boomerangs that are directly opposite"</p> |
| 10. $y = \frac{20}{x}$ |  | <p>Same as</p> |

After you've recorded all of the equations in the table, sort the graphs into "families". Look for common characteristics and special features to help you make your decisions and make up a name for each family.

| Family Name | The graphs that belong to this family are... | The reason they belong to this family is... |
|---|--|---|
| 1. $y = -2x + 5$ | Lines | $y = mx + b$ |
| 2. $y = x + 2 $ | "V-shaped" | x is inside the absolute value |
| 3. $y = -x^2$ $y = x^2 - 6$ | "rainbow" | x is squared |
| 4. $y = x^3$ $y = x^3 + 2$ | "Slides through" | x is cubed |
| 5. $y = \sqrt{x} + 2$ | "half a curve" | x is under the square root (Radical symbol) |
| 6. $y = 3^x$ | "half a U" | x is in the exponent |
| 7. $y = \frac{10}{x}$ $y = \frac{20}{x}$ | "2-boomerangs directly opposite" | a # is being divided by x |