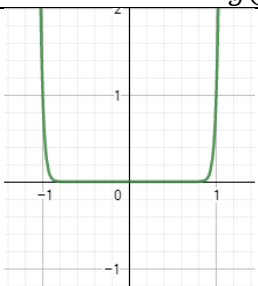
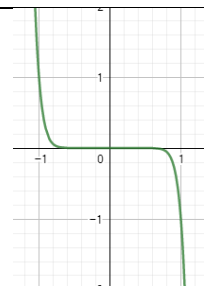


1. For each of the following power functions roughly sketch the graph and then describe the end behavior. **Do not use your calculator.**

| | $g(x) = x^{300}$ | $f(x) = -x^{13}$ |
|--------------|--|---|
| Rough Sketch |  |  |
| End Behavior | As $x \rightarrow \infty, y \rightarrow \infty$; As $x \rightarrow -\infty, y \rightarrow \infty$ | As $x \rightarrow \infty, y \rightarrow -\infty$; As $x \rightarrow -\infty, y \rightarrow \infty$ |

2. What part(s) of the equation did you look at to determine what the end behavior would be in #1?

I looked at the exponent and the coefficient. If the exponent is even then both ends will go the same direction. If the exponent is odd then the ends will go in different directions. If the coefficient is positive, the right side will approach infinity. If the coefficient is negative then the right side will approach negative infinity.

❖ Follow Up Practice for Q1 and Q2

For each of the following power functions roughly sketch the graph and then describe the end behavior.

| | $g(x) = -2x^{12}$ | $f(x) = x^{17}$ |
|--------------|--|--|
| Rough Sketch | | |
| | <p>What is the exponent on this function?</p> <p>This exponent tells me:</p> <ul style="list-style-type: none"> a) The graph will go up on one end and down on the other end. b) The graph will go up on both ends or down on both ends. <p>What is the coefficient?</p> <p>What does that tell you about the end behavior?</p> <ul style="list-style-type: none"> a) As $x \rightarrow \infty, y \rightarrow \infty$ and As $x \rightarrow -\infty, y \rightarrow \infty$ b) As $x \rightarrow \infty, y \rightarrow -\infty$ and As $x \rightarrow -\infty, y \rightarrow \infty$ c) As $x \rightarrow \infty, y \rightarrow -\infty$ and As $x \rightarrow -\infty, y \rightarrow -\infty$ d) As $x \rightarrow \infty, y \rightarrow \infty$ and As $x \rightarrow -\infty, y \rightarrow -\infty$ | <p>What is the exponent on this function?</p> <p>This exponent tells me:</p> <ul style="list-style-type: none"> a) The graph will go up on one end and down on the other end. b) The graph will go up on both ends or down on both ends. <p>What is the coefficient?</p> <p>What does that tell you about the end behavior?</p> <ul style="list-style-type: none"> a) As $x \rightarrow \infty, y \rightarrow \infty$ and As $x \rightarrow -\infty, y \rightarrow \infty$ b) As $x \rightarrow \infty, y \rightarrow -\infty$ and As $x \rightarrow -\infty, y \rightarrow \infty$ c) As $x \rightarrow \infty, y \rightarrow -\infty$ and As $x \rightarrow -\infty, y \rightarrow -\infty$ d) As $x \rightarrow \infty, y \rightarrow \infty$ and As $x \rightarrow -\infty, y \rightarrow -\infty$ |

