Warm Up

Fill in the interval notation sheet (with the number lines) #1-5.

Make sure you have 8 index cards.

Objective: SWBAT identify parent functions and name their characteristics.

Agenda:

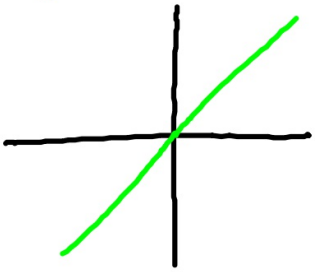
- Warm Up
- Notes
- Practice
- Reflection

HW: unfinished "checklist"

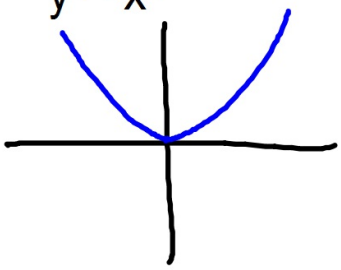
Parent Functions

Draw each graph on a different card (preferably unlined side)

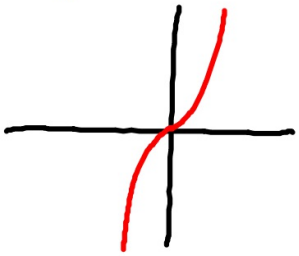
Linear
$y = x$



Quadratic
$y = x^2$

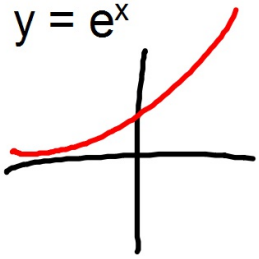


Cubic
$y = x^3$



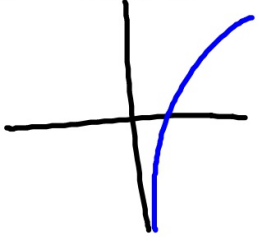
Parent Functions

Exponential
$y = e^x$

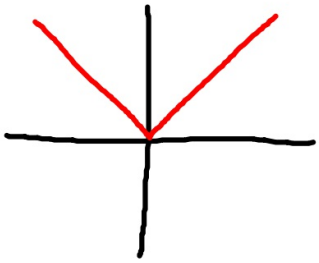


Square Root
$y = \sqrt{x}$

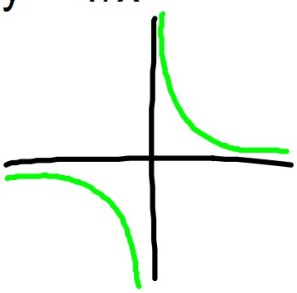
Logarithmic
$y = \log(x)$



Absolute Value
$y = |x|$



Rational
$y = 1/x$



Notes: Domain and Range

The domain of a function is the set of values that x (the independent variable) can take.

- vertical asymptotes and holes are excluded from the domain
  - hits: rational functions, log functions

The range of a function is the set of values that y (the dependent variable) can take.

- horizontal asymptotes are excluded from the range
  - hits: rational functions, exponential functions

Notes: Symmetry

A function has symmetry if you can do something and get an image that is the same as the original.

Types:

- even: reflect across the y-axis (abs. value, quadratic, ...
- odd: rotate 180° around the origin (rational, linear, cubic

Examples

For each parent function, name the domain, range, and type of symmetry (if any):

1. quadratic

   D: $(-\infty, \infty)$ R: $[0, \infty)$ S: even

2. rational

   D: $(-\infty, 0)(0, \infty)$ R: $(-\infty, 0)(0, \infty)$ S: odd

3. logarithmic

   D: $(0, \infty)$ R: $(-\infty, \infty)$ S: none

Practice

Parent function checklist

Reflection

What is a way to remember how domain works?