Algebra 2 – Graphing Rational Functions - Extensions

I. Find the Errors!

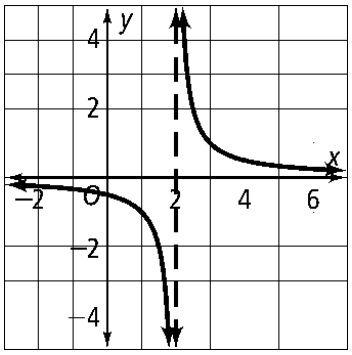
Identify the error(s) in planning the solution or solving the problem. Then write the correct solution.

What is the graph of the rational function $y = \frac{1}{x-2}$?

Give the domain and range in set notation.

To obtain the graph of $y = \frac{1}{x-2}$ you can shift the graph of $y = \frac{1}{x}$ left 2 units.

The domain is $\{x \mid x \neq -2\}$.
The range is $\{y \mid y \neq 0\}$.

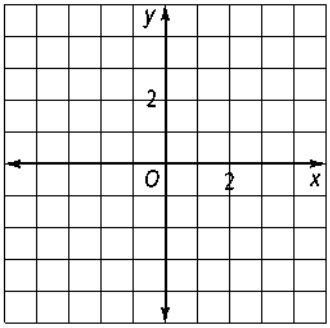


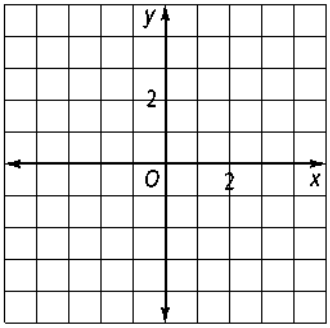
II. "A Function Fable"

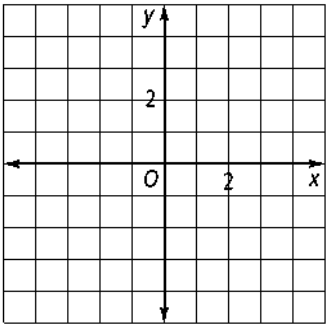
Given: $g(x) = \frac{1}{x}$, $s(x) = \frac{1}{x+2}$, $d(x) = \frac{1}{x-3}$, $m(x) = \frac{1}{x-3} + 6$, $p(x) = \frac{1}{x+2} + 3$, and $j(x) = \frac{-1}{x+2} - 3$

Grandma function $g(x)$ had two children. Her son Steve $s(x)$ was left-handed and her daughter Diana $d(x)$ was right-handed. Diana had one very tall child Michel $m(x)$, who towered above her. Steve had two children as well. Pat $p(x)$ and Jo $j(x)$ were twins, but opposites of one another.

Graph the functions $g(x)$, $s(x)$, and $p(x)$ on the grids below.







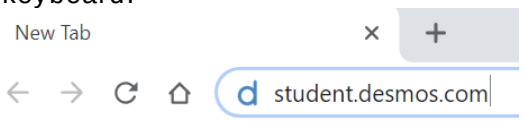
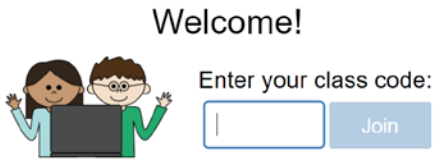
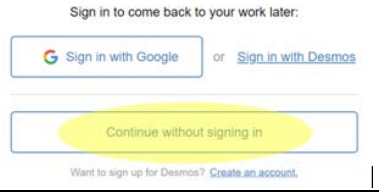
Activity

Make a reciprocal function family with at least 3 "generations" and 6 individual functions. Explain the transformations that yield each member. Have at least one member in the third generation be a driving, graduate-athlete given:

- A horizontal translation corresponds to being a driver.
- A vertical translation corresponds to being an athlete.
- A reflection corresponds to being a high-school graduate.

Note: In the fable above, Jo was the only driving, graduate-athlete.

III. Desmos **IF you have internet access, do this activity:

1	Open Google Chrome. **Do not** sign in to your Google account.
2	In the address bar, type student.desmos.com and click the Enter key on the keyboard. 
3	Enter the class code and click Join.  Class Code: 6JEXMD
4	Click Continue without signing in. 
5	Type your name in the box and click Go.