1. Draw the reciprocal function on the same axes below:

2. Sketch the function
   \[ f(x) = \frac{1}{(x+4)(x-3)(x+2)} \]

3. Complete the table:

<table>
<thead>
<tr>
<th>( f(x) )</th>
<th>( \frac{1}{f(x)} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( x ) - intercepts</td>
<td>(-4 ) and ( 6 )</td>
</tr>
<tr>
<td>( y ) - intercept</td>
<td>(-24 )</td>
</tr>
<tr>
<td>positive intervals</td>
<td>((-\infty, -4), (6, \infty))</td>
</tr>
<tr>
<td>negative intervals</td>
<td>((-4, 6))</td>
</tr>
<tr>
<td>increasing intervals</td>
<td>((1, \infty))</td>
</tr>
<tr>
<td>decreasing intervals</td>
<td>((-\infty, 1))</td>
</tr>
<tr>
<td>local minimum</td>
<td>when ( x = 1 )</td>
</tr>
</tbody>
</table>

4. Graph the function
   \[ f(x) = \frac{12x - 36}{4x + 4} \]

5. Graph the function
   \[ f(x) = \frac{(x + 1)(x + 2)(x + 3)}{(x - 1)(x + 2)(x + 5)} \]
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6. Graph the function
   \[ f(x) = \frac{(x + 2)(x - 1)}{(x + 1)} \]

7. Graph the function
   \[ f(x) = \frac{(x + 3)(x + 1)}{(x + 1)(x + 4)(x - 2)} \]

8. Mrs. Bethany bought some cupcakes for a bakesale for $18. When she wasn't looking, Mr. Nathan ate one. She sold the rest at the bakesale for a total of $22, making a profit of $0.50 on each cupcake. How many cupcakes did Mrs. Bethany sell at the bakesale?

9. Mrs. Bethany can finish hanging a load of laundry 2 minutes faster than Mr. Nathan. Together, they can finish hanging a load of laundry in 7 minutes. How long does it take Mr. Nathan on his own?

10. Describe what continuity is.

    A function is continuous if it does not contain any holes or VAs (or any break) over its whole domain.
    (can think of it as: you're able to draw the whole thing without lifting your pencil)

11. Solve the inequality:
    \[
    \frac{x^2 + 6x + 13}{x + 4} \leq -\frac{20}{(x - 2)(x + 4)}
    \]