1. Use a graphing calculator to graph 
\[ y = \frac{2}{x} \text{ and } y = \frac{2}{x^2}. \] Make a sketch of the graph. What is the vertical asymptote of each function?

2. Sketch a graph of \( f(x) = \frac{-3x-1}{x+4} \). Include any vertical or horizontal asymptotes.

3. Sketch a graph of \( f(x) = -\frac{2x-3}{x-1} \). Include any vertical or horizontal asymptotes.

4. Sketch a graph of \( f(x) = \frac{x+1}{x-2} \). Include any vertical or horizontal asymptotes.

5. Locate the asymptotes and graph the rational function \( f(x) = -\frac{1}{x^2-16} \).
6. Locate the asymptotes and graph the rational function \( f(x) = \frac{-4}{x^2 - 25} \).

7. Graph the rational function \( f(x) = \frac{-2x^2 + x - 1}{x^2 - 1} \).

8. Graph the rational function \( f(x) = \frac{-4x^2 + 5x - 4}{x^2 - 4} \).

9. A new computer game costs $145,000 to research and develop. Once completed, individual games can be produced for just $0.35 each. If the first 200 are given away as samples, write and graph a function \( C(x) \) for the average cost of disks that will be sold to customers. How many games must be sold for the average price to drop below $1? (Hint: when graphing, use large values for your x-axis)

10. A new computer game costs $157,500 to research and develop. Once completed, individual games can be produced for just $0.40 each. If the first 150 are given away as samples, write and graph a function \( C(x) \) for the average cost of disks that will be sold to customers. How many games must be sold for the average price to drop below $2? (Hint: when graphing, use large values for your x-axis)
[1] $x = 0$

[2]

[3]

[4]

[5]

[6]

[7]

[8]
$C(x) = \frac{0.35x + 145000}{x - 200};$ 223,000 games sold

$C(x) = \frac{0.4x + 157500}{x - 150};$ 98,000 games sold