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1. Let $f(x) = \frac{x^2-16}{2x-2}$. Is f symmetric? Find the domain of f, the x and y intercepts, the asymptotes, the intervals where f is increasing, decreasing, concave upwards, and concave downwards, respectively, the local extrema, the inflection points, and sketch the graph of f.

2. Party. You are at the point $(0,1)$, the bar is the interval $[0,1]$ on the x-axis. Suddenly you see your neighbor who is standing at $(1,2)$. You want to go to talk to him, but first go to the point $(p,0)$ at the bar and grab a drink (i.e., go straight from $(0,1)$ to $(p,0)$ and then straight from $(p,0)$ to $(1,2)$). Draw a picture of the scene and describe the travel distance as a function of p. How long is the minimal (in case your neighbor is a good friend) and the maximal (in case your neighbor isn't such a good friend) travel distance?

3. Graph the function $f(x) = x^2 + 2x + 1$. Use Newton's method with $x_0 = 0$ to calculate (and plot) x_1, x_2, x_3, x_4. Give a formula for x_n. What is the limit of x_n as $n \to \infty$?