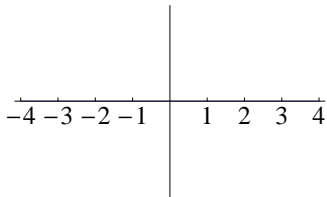


Show work for problems 1, 3, 4, and 5; use the back of the sheet if necessary.

1. **(6 points)** Y'Gael sells maps at a price of 40 zorkmids each, and gets 100 customers per day. Market research suggests that every zorkmid by which she raises or lowers the price loses or gains her 5 customers respectively. Determine the daily revenue of her business as a function of price, and determine which price maximizes her revenue.

2. **(4 points)** Sketch the function $f(x) = -2(x - 2)(x + 1)(x + 2)$. If you wish, you may label points on the y-axis.



3. **(3 points)** Find the inverse of the function $h(x) = -5x + 3$.
4. **(2 points)** Explain why $f(x) = x^2 - 2x$ has no inverse.
5. **(5 points)** Let $f(x) = \sqrt{x+2}$ and $g(x) = \frac{1}{x-1} - 1$. Write formulas and find the domains for the functions $(fg)(x)$ and $\frac{f}{g}(x)$. Indicate which is which.