ALGEBRA 2
PROBLEM SET 5

DUE DATE: FEBRUARY 8, 2024

Question 1. One of the zeros of a polynomial function is 1. After translating the graph of the function left 2 units, 1 is a zero of the new function. What do you know about the original function?

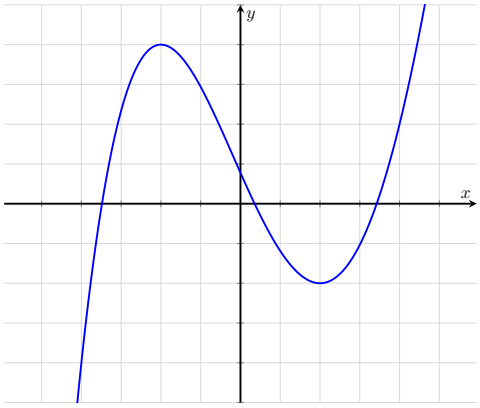
Question 2. A function $f(x)$ has a zero at $x = 1$, a horizontal asymptote of $y = \frac{2}{3}$, and a vertical asymptotes at $x = -4$.

Define a few different functions:

$$p(x) = 2 \cdot f(x + 5)$$
$$q(x) = -f(-x)$$
$$r(x) = \frac{2}{f(x)}$$

Find any zeros (roots), horizontal asymptotes, and vertical asymptotes of the new functions.

Question 3. Suppose the curve drawn below is $f(x)$:



Draw sketches of

(1) $f(|x|)$
(2) $|f(x)|$
(3) $\frac{1}{2}f(x)$
(4) $|f(x)|$
(5) $f(|x|)$
(6) $f(-x)$
(7) $-f(x)$
(8) $f(x) + 2$