8. [8 points]
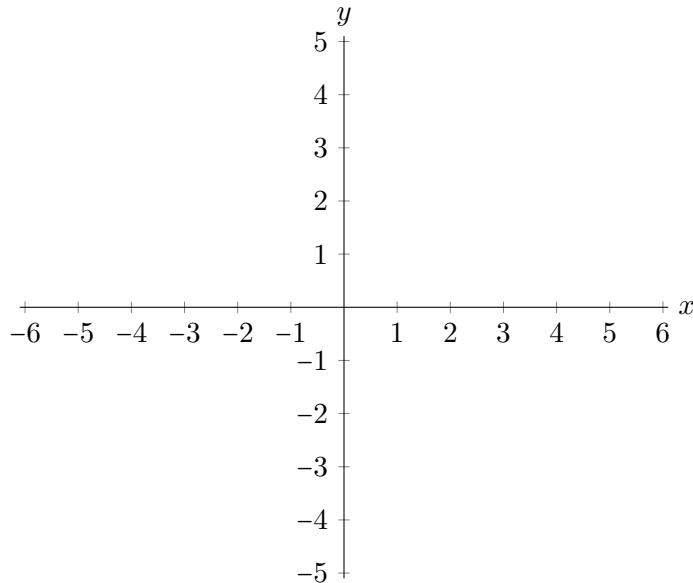
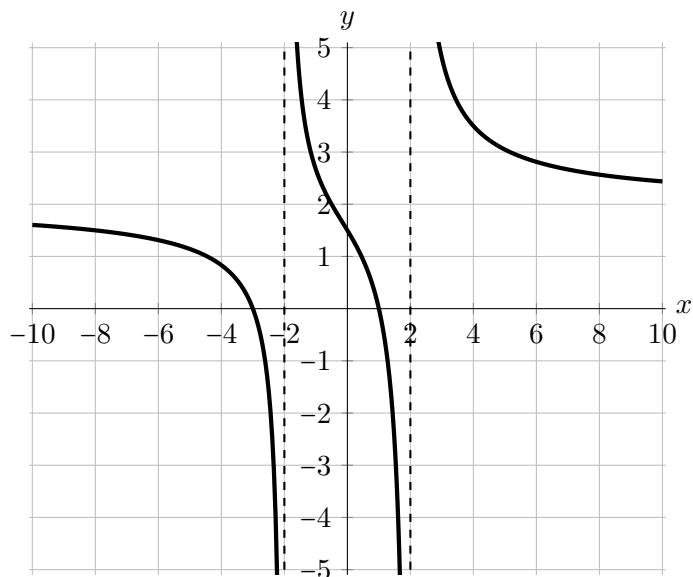   **a.** [4 points] Sketch a graph of a polynomial $f(x)$ satisfying the following conditions:

- $f(x)$ has zeros at $x = -1$, 2, and 4
- the y-intercept is 1
- $\lim\limits_{x \to -\infty} f(x) = -\infty$
- $f(x)$ is of degree 4

    b. [4 points] Write a possible formula for the graph of the rational function shown below. For clarity, its features are also described below.

- the y-intercept is 1.5
- the zeros are -3 and 1.
- horizontal asymptote of $y = 2$
- vertical asymptotes of $x = -2$ and $x = 2$

$y = $ _____