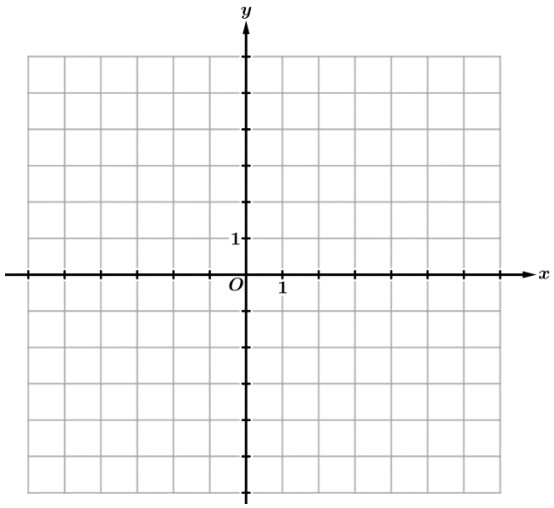
Worksheet A: (Topic 1.11) Polynomial and Rational Functions Name:

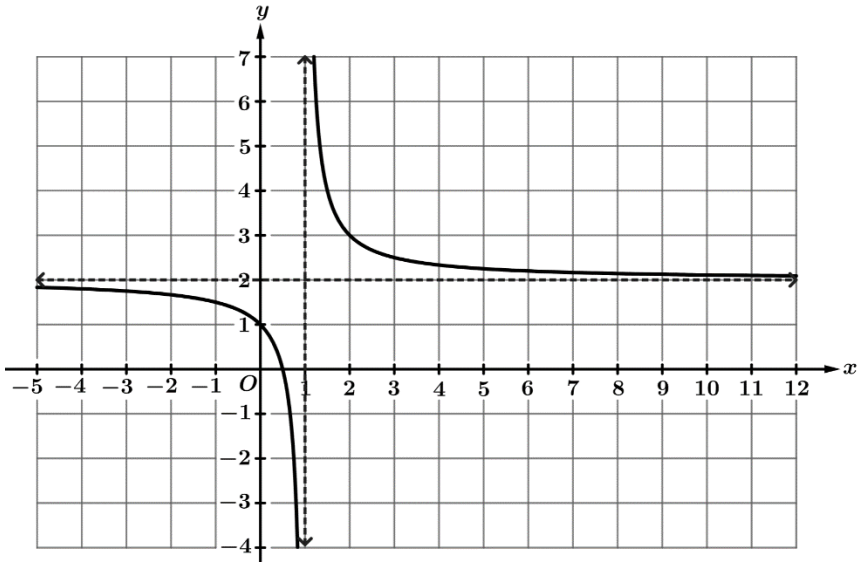
Directions: For each rational function below, use an equivalent representation to find the information requested.

1. $f(x)=\dfrac{x^2+x-12}{x^2-2x-3}$

a) Write an equation for $f(x)$ in factored form.	b) Find any zeros of the function $f(x)$.	c) Find any values of x where $f(x)$ has a hole.
d) Find any vertical asymptotes of $f(x)$.	e) Find any horizontal asymptotes of $f(x)$.	f) Find the domain of $f(x)$.
g) Use a graphing calculator to help sketch the graph of $f(x)$.		

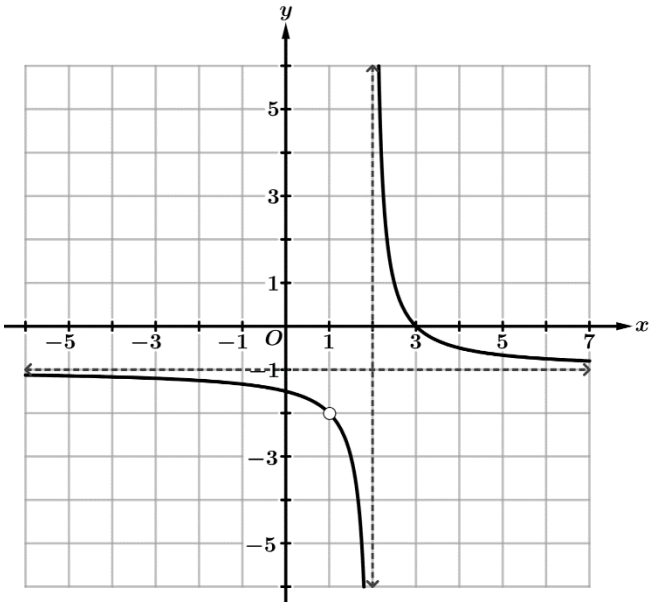
2. $g(x)=\dfrac{x^3-9x}{x^2+2x-15}$

a) Write an equation for $g(x)$ in factored form.	b) Find any zeros of the function $g(x)$.	c) Find any values of x where $g(x)$ has a hole.
d) Find any vertical asymptotes of $g(x)$.	e) Find any horizontal asymptotes of $g(x)$.	f) Find the domain of $g(x)$.



Graph of $r(x)$

3. A portion of the graph of the rational function r is shown above. Write an equation, in factored form, for $r(x)$.



Graph of $h(x)$

4. A portion of the graph of the rational function h is shown above. Write an equation, in factored form, for $h(x)$.