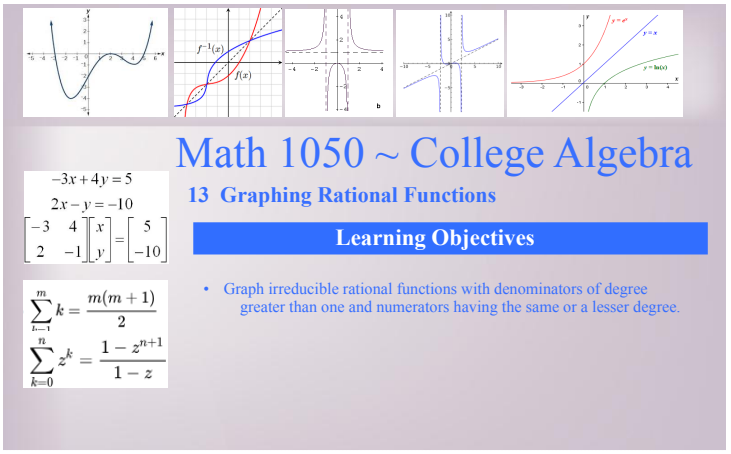
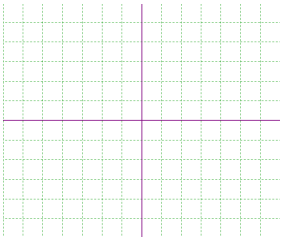


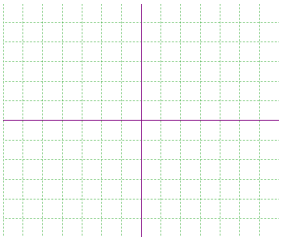
In our toolkit of functions, we have two rational functions.

Ex 1: Sketch these using transformations of the toolkit function.

a) $g(x) = \dfrac{4}{(x+1)} - 2$

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



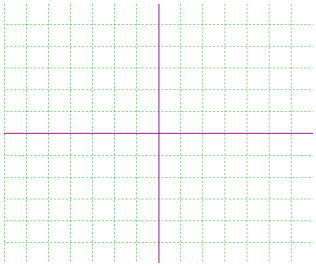
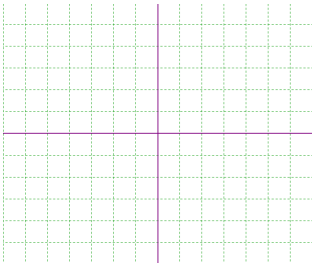
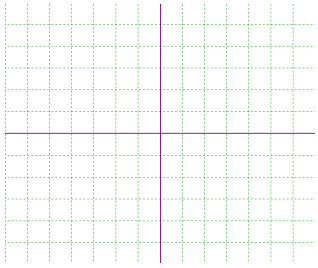


Not all rational functions can be put in this form. It is helpful to follow the steps in the previous lesson to get a graph of a rational function.

1. Determine the domain and plot vertical asymptotes.
2. Find and plot the x- and y- intercepts.
3. Determine and plot the end-behavior asymptotes.
4. Use a sign-line and the value of other points to complete the graph.

Ex 2: For each of these, determine the x and y-intercepts, vertical and horizontal asymptotes and sketch a graph.

a) $f(x) = \dfrac{3}{1-x}$ b) $g(x) = \dfrac{3-x}{x^2+4}$ c) $h(x) = \dfrac{2x^2-5x-3}{x^2+x-2}$

Ex 3: Analyze and graph.

$$f(x) = \frac{(x-4)(x-2)^2}{(x+3)^2(x-1)}$$