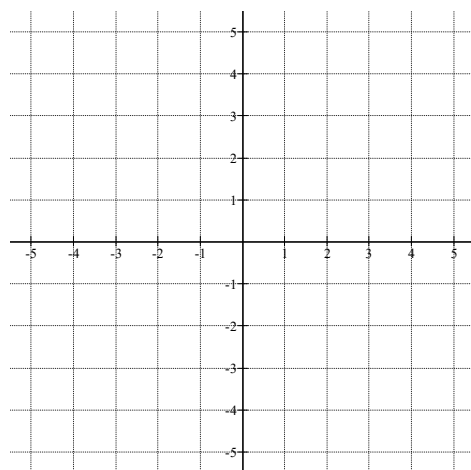


Unit 9: Rational Functions

9.2 Analysing Rational Functions

Graph the function $f(x) = \frac{x^2 - 5x + 6}{x - 3}$ with your graphing calculator & sketch the result. Is the graph what you expected? Explain.

Simplify $f(x) = \frac{x^2 - 5x + 6}{x - 3}$ and use the simplified form to graph $f(x)$ by hand:



A vertical asymptote of the graph corresponds to a non-permissible value in the equation of the function, but not all non-permissible values result in vertical asymptotes. Sometimes a non-permissible value instead results in a **point of discontinuity** in the graph.

Point of Discontinuity:

Ex. Compare the functions $f(x) = \frac{x^2-2x}{4-2x}$ and $g(x) = \frac{x^2+2x}{4-2x}$. Explain any differences & verify by graphing with your calculator.

Ex. Match the equation of each rational function with the most appropriate graph. Give reasons for each choice.

$$A(x) = \frac{x^2 + 2x}{x^2 - 4}$$

$$B(x) = \frac{2x + 4}{x^2 + 1}$$

$$C(x) = \frac{2x}{x^2 - 4}$$

