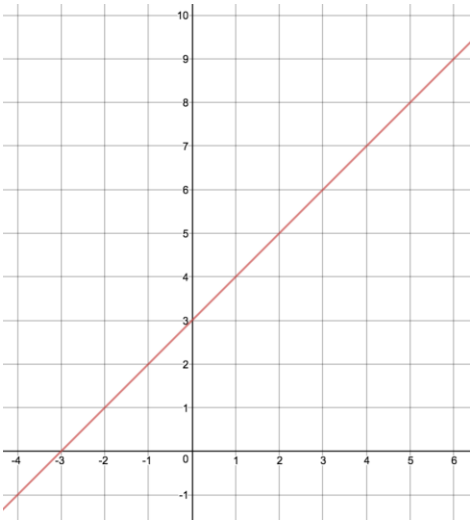
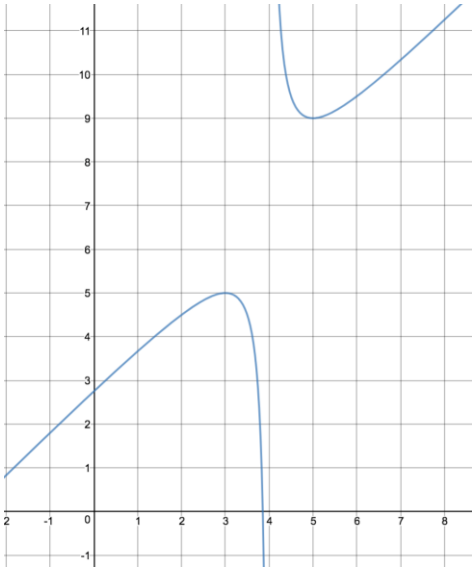
Notes 15.4 Rational Functions: Discontinuities and Limits

$f(x) = \frac{x^2-x-12}{x-4}$ $g(x) = \frac{x^2-x-11}{x-4}$

Do the graphs of these similar equations look alike? They are each undefined at x = _____ or have a **discontinuity**.





Since the factor (x – 4) can be removed, it is called a **removable discontinuity**.

no factors can be removed from g(x) so there is a **vertical asymptote**

As x approaches 4, f(x) approaches _____.

g(4) =

$\lim_{x\to 4} f(x)$ = _____ This # is called the **limit.**

The **limit** $\lim_{x\to 4} g(x)$ = _____

$f(x) = \frac{x^3-5x^2+8x-6}{x-3}$ $g(x) = \frac{x^3-5x^2+8x-5}{x-3}$

Where is the **discontinuity**?

Find the **limit** of each function at the discontinuity.