5.4 Properties of Rational Functions (Domain)

▼ Finding Domain of Rational Functions

Since rational functions are in the form of a fraction, $R(x) = \frac{p(x)}{q(x)}$, there is a restriction that the denominator is not zero. You can find the restricted values be creating an equation. The equation is the denominator equal to zero, $q(x) = 0$. The solutions to this equation are restricted values and must be excluded from the domain.

▼ Examples: Find the domain of the rational function

▼ Example 1: $f(x) = \frac{3}{x+2}$

▼ Example 2: $g(x) = \frac{x+1}{2x-6}$

▼ Example 3: $h(x) = \frac{3x^2-6x+2}{x-2}$

▼ Example 4: $R(x) = \frac{x^2-9}{x^2+x-2}$

▼ Example 5: $G(x) = \frac{x^2+2x-15}{x^2-25}$

▼ Example 6: $G(x) = \frac{x^4-16}{x^2+9}$