$$\frac{96}{40}$$
 -8 = $\frac{12}{5}$

or
$$\frac{90}{40}$$

$$\frac{90}{40} \div 4 = \frac{24}{10} \div 2 = \frac{12}{5}$$

or
$$\frac{96+2}{40+2} = \frac{48+2}{20+2}$$
 $\frac{24+2}{10+2} = \frac{12}{5}$

State restrictions on the variable.

$$\frac{8x^2 + 16x}{x^2 + 7x + 10}$$





Solve for Q. State restrictions on the variables.

$$\frac{RQ^{-}X^{k}}{M_{m}} = \frac{E_{m+k}}{R}$$

Definition

Rational Function

A **rational function** f(x) is a function that can be written as

$$f(x) = \frac{P(x)}{Q(x)},$$

where P(x) and Q(x) are polynomial functions. The domain of f(x) is all real numbers except those for which Q(x) = 0.

In simple terms-

Rational Functions:

The ratio of two polynomials.

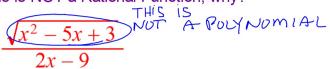
 $\mathcal{H} \Rightarrow \frac{\text{Polynomial}}{\text{Polynomial}}$

Restrictions on the variable are zeros of the denominator.

Sec 9-4 Simplifying Rational Expressions

- Factor all numerators and denominators
- Cancel factors common to the numerator and denominator
- Restrictions are any values that make the denominator zero at any point (beginning or end)

This is NOT a Rational Function, why?



Simplify. State restrictions on the variable.

X+0 y+0 2.

