

Section 6.1: Rational expressions and functions

Objectives:

- * Find the domain of a rational function.
- * Evaluate a rational function.
- * Simplify rational expressions.

$$\frac{9x-2}{3x+1}$$

$$\frac{3-2x^2}{5x^2}$$

Vocabulary

A Rational Function

Domain

① Example

Find the domain for these.

a) $f(x) = \frac{3}{x-1}$

b) $g(x) = \frac{4x-2}{6}$

c) $y = \frac{3x-2}{(x-3)(x+2)}$

d) $h(x) = \frac{9x-2}{4x^2+1}$

② EXAMPLE

Evaluate these.

a) $f(-2)$ when $f(x) = \frac{x^2 - 3x}{x - 4}$

b) $g(1)$ when $g(x) = \frac{x - 3}{2x + 1}$

③ EXAMPLE

Simplify these.

a) $\frac{2x^3 - 3x}{6x^2}$

b) $\frac{2x^2 - 5x - 12}{-3x + 12}$

c) $\frac{x^2 - 16}{x^2 - 2x - 8}$

d) $\frac{2x^2 + 2xy - 4y^2}{5x^3 - 5xy^2}$