Pre-Calculus 110

Rational Expressions

Learning Targets

I can:

- determine the non-permissible values for a rational expression *and explain why* (**AN4.1**)
- simplify a rational expression (**AN4.2**)

Strategy for Simplifying Rational Expressions Containing Only Monomials

1. State all non-permissible values.
2. Cancel any factors that appear in both the numerator and denominator and reduce fractions.

Sample Problems

Simplify.

a) $\frac{-2xy}{6x^2y^3}$ b) $\frac{14x^2y^4}{7xy^8}$ c) $\frac{25x^7y^3z^4}{-5x^2y^9z^2}$

Strategy for Simplifying Rational Expressions Containing Polynomials

1. Completely factor the numerator and denominator.
2. State all non-permissible values.
3. Cancel any factors that appear in both the numerator and denominator.

Sample Problems

Simplify.

a) $\frac{3x-3}{6x-6}$ b) $\frac{x-2}{x^2-4}$ c) $\frac{x^2-x-6}{x^2+4x-21}$ d) $\frac{x-7}{7-x}$

e) $\frac{x^2-11x-30}{10x-2x^2}$ f) $\frac{4x^2-32x}{x^2-5x-24}$ g) $\frac{3x^2-10x-8}{16-x^2}$