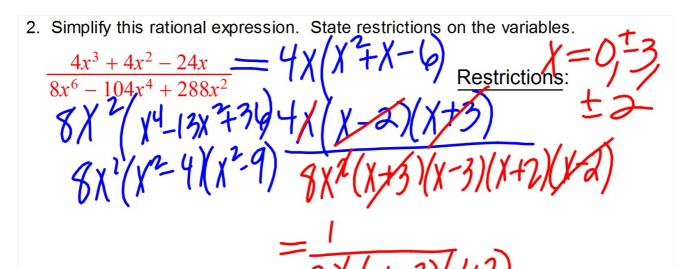
1. Find the equations for all VA and HA, if any. Find all Holes and x & y - intercepts, if any. HA: $y = 2x^3 + 8x^2 - 10x$ VA: x = 13Holes: x = 1

Sec 9-4 Simplifying Rational Expressions

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



3. Of all the houses in a certain neighborhood, 80% have garages. Of those with garages, 60% have two-car garages. If there are 56 houses with garages that are <u>not</u> two-car garages, how many houses are there in the neighborhood?

A. 26 B. 93 C. 117 D. 156 E. 175

X OF Houses W. Garages

40% Do not have two car. 1 of what

5615401 of what

140 have garages

140 Is 80% of What X=140

140 = .80X

X=175 houses

Simplify without a calculator.

$$\frac{36 \div 4}{27 \div 3} = 1.5$$

$$\frac{36 \div 4}{15 \div 4}$$

$$\frac{9}{9} \cdot \frac{5}{4} = 1.5$$

$$\frac{5}{4} = 5/4$$

Rational Expressions:

The ratio of two polynomials.

Polynomials: Have whole number exponents and real coefficients.

A rational expression is in its simplest form when:

The denominator and numerator have no common factors.

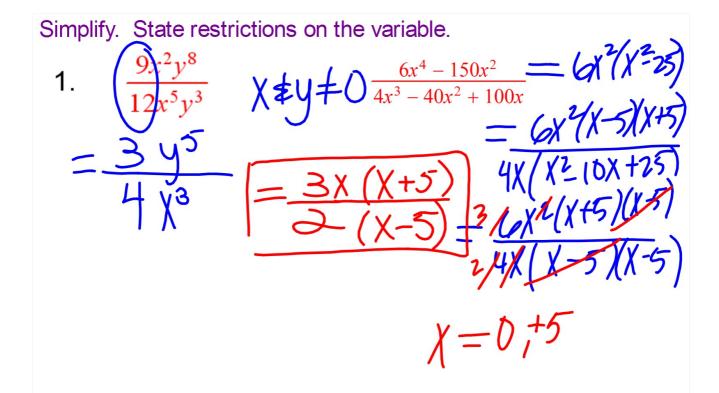
This is NOT a Rational Function, why?

$$\frac{\sqrt{x^2 - 5x + 3}}{2x - 9}$$

The numerator isn't a polynomial!

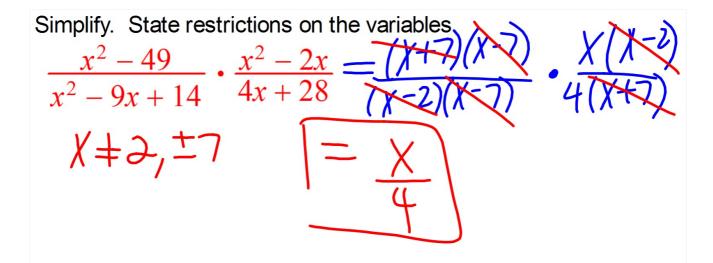
Sec 9-4 Simplifying Rational Expressions

- 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)



Sec 9-4 Simplifying the Product or Quotient of Rational Expressions

- Factor all numerators and denominators.
- If mulitplying you can simplify within the same fraction and/or cross cancel. Finish by multiplying numerators and multiplying denominators so that you can write the answer as a single fraction.
- Instead of dividing, multiply by the reciprocal then simplify as you would when multiplying.
- State restrictions on the variable.



Simplify. State restrictions on the variables.

$$\frac{x^{2}-16}{9x^{2}+18x} \div \frac{x^{2}-3x-4}{3x^{2}+6x}$$

$$\frac{\chi^{2}-1b}{9\chi^{2}+18\chi} \cdot \frac{3\chi^{2}+b\chi}{\chi^{2}-3\chi-4} = \frac{(\chi+4)(\chi-4)}{3\chi(\chi+2)} \cdot \frac{3\chi(\chi+2)}{\chi^{2}-3\chi-4} = \frac{(\chi+4)(\chi+4)}{3(\chi+1)} \cdot \frac{\chi+4}{3(\chi+1)} \cdot \frac{\chi+4}{3(\chi+$$