AA Chapter 9 Study Guide

9.1 Simplify Rational Expressions (multiply & divide)

Step 1: Factor
Step 2: Look to cancel/reduce
Step 3: Rewrite what remains

Example $\frac{x^2-4}{x^2+8x+15} \cdot \frac{2x^2-8}{x^2+3x}$

$\frac{(x+2)(x-2)}{(x+3)(x+5)} \cdot \frac{x(x+3)}{2(x+2)(x-2)}$

$\frac{x}{2(x+5)}$

9.2 Add/Subtract Rational Expressions

- Need a common denominator

Example $\frac{-2}{x^2-1} + \frac{x}{x+1} + \frac{3}{1-x} =$

$\frac{-2}{(x+1)(x-1)} + \frac{x(x-1)}{(x+1)(x-1)} + \frac{3(x+1)}{(x+1)(x-1)} = \frac{-2+x^2-x+3x+3}{(x+1)(x-1)}$

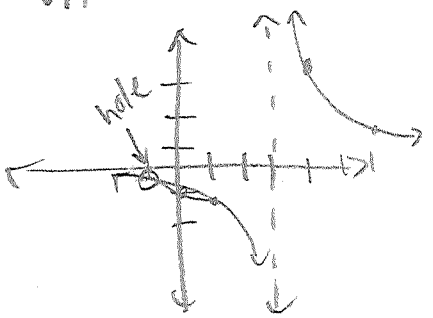
$= \frac{x^2+2x+1}{(x+1)(x-1)} = \frac{(x+1)(x+1)}{(x+1)(x-1)} = \frac{x+1}{x-1}$

9.3 Graphing Rational Expressions

- VA or Hole?
- Hole present when entire factor cancels
- VA found when nothing cancels

Example $\frac{3x+3}{x^2-2x-3} = \frac{3(x+1)}{(x-3)(x+1)}$

hole: $x = -1$
VA: $x = +3$



x	y
0	-1
1	-1.5
-1	-.75
4	3
6	1