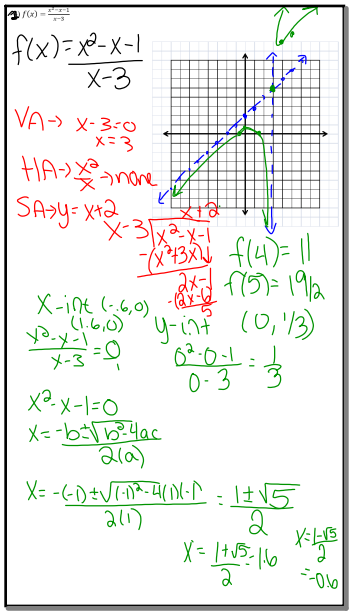
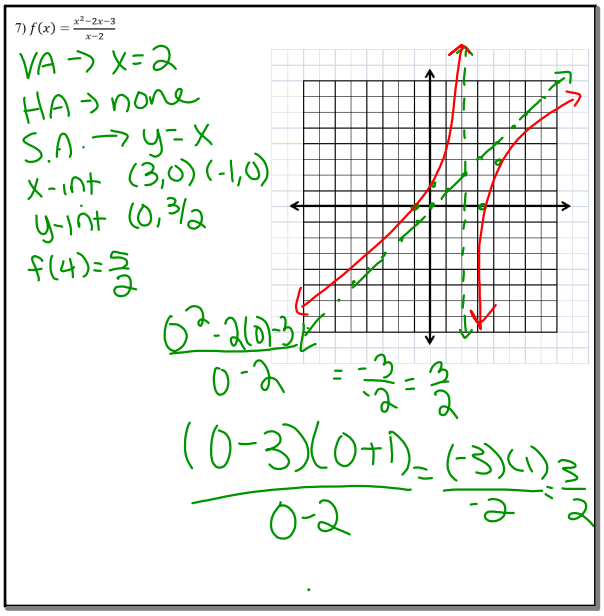
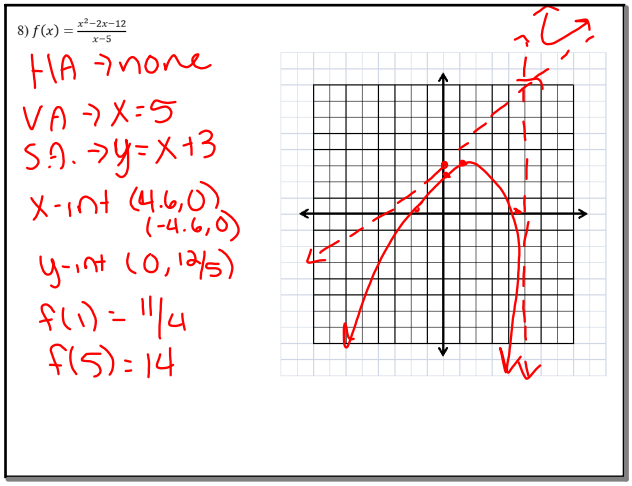
Lesson 41- Objective: SWBAT reduce algebraic fractions.

Kickoff

Complete question 4 from yesterdays worksheets!







Reducing Algebraic Fractions

Try This: State the domain of each of the following:

1) $\frac{3+x}{4x}$ 2) $\frac{4x}{x+4}$ 3) $\frac{x+2}{6x+18}$ 4) $\frac{x^2+3}{3x^2+10x+3}$

4x=0
x=0
ℝ except 0

ℝ except x=-4

ℝ except x=-3

$3x^2+10x+3=0$
$3x^2+9x+x+3=0$
$3x(x+3)+1(x+3)=0$
$(x+3)(3x+1)$

ℝ except x=-3, -1/3

Reducing Algebraic Factions

1) Factor the numerator and the denominator completely.
w/ positive coefficients!
2) Reduce by canceling **factors** from the numerator and denominator.
multiplying!

Examples:

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

2) $\frac{4x+8}{x^2-2x-8}$ $\frac{4(x+2)}{(x-4)(x+2)}$ $\frac{4}{x-4}$

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

4) $\frac{12-6x}{x^2-4}$ $-6(2+x)$ / $(x-2)(x+2)$ $\frac{-6}{x+2}$

5) $\frac{a^2x-ax^2}{a^2x^2-a^3x}$ $ax(a-x)(-1)$ / $a^2x(x-a)$ $\frac{-ax}{a^2x} = \frac{-1}{a}$

6) $\frac{4x+6}{2x^2-x-6}$ $\frac{2(2x+3)}{(2x+3)(x-2)}$ $\frac{2}{x-2}$

Practice:

1) $\frac{x^2+4x}{x^2+2x-8}$

2) $\frac{10x^5}{2x^3+2x^2}$

3) $\frac{2x^2+18x}{2x^3-6x^2-36x}$

4) $\frac{x^2+3x-4}{7x^3+7x^2-14x}$

5) $\frac{5m^3-20m}{m^4+5m^3+6m^2}$

6) $\frac{3r^2-39r+90}{r^2-3r-70}$

7) $\frac{x^2+2x-80}{x^3+8x^2-9x}$

8) $\frac{9x^2+81x}{x^3+8x^2-9x}$

9) $\frac{4-2(x-1)}{x^2-6x+9}$

10) $\frac{2x+10}{3x+15}$