

\* Goal: Solve Rational Equations  
like  $\frac{16}{x-4} + \frac{2x-5}{4} = \frac{x}{x^2-16}$

## Rational Expressions

$\frac{16}{x-4}$  when is  $x-4=0$ ?  $x=4$

$\frac{2x-5}{4}$  when is  $4=0$ ? Never

$\frac{x}{x^2-16}$  when is  $x^2-16=0$ ?  $x = \pm 4$   
 $(x-4)(x+4)=0$   
 $x-4=0$     $x+4=0$   
 $x=4$  OR  $x=-4$

★ When is a rational expression  
undefined?

↳ when the denominator  
equals ZERO