Rational Expressions: Least Common Denominator

Finding the Least Common Denominator (the least expression that is divisible by the denominator of each of the rational expressions) **for Polynomials**

1. Factor each denominator polynomial completely. Use exponents to express repeated factors.
2. Write the product of all of the different factors that appear in the polynomials.
3. For each factor, use the highest power of that factor in any of the polynomials.

Use a Factor-tree table. Find the LCD for $\frac{2}{15x^2}+\frac{5}{12x}$:

$\frac{2}{15x^2}$	3	5	X	X			
$\frac{5}{12x}$	3		X		2	2	
LCD:	3	5	X	X	2	2	= $60x^2$

Use a Factor-tree table. Find the LCD for $\frac{1}{x^2+5x+6}+\frac{1}{x^2+6x+9}$:

$\frac{1}{x^2+5x+6}$	$(x+2)$	$(x+3)$		
$\frac{1}{x^2+6x+9}$		$(x+3)$	$(x+3)$	
LCD:	$(x+2)$	$(x+3)$	$(x+3)$	= $(x+2)(x+3)^2$

Try:

Use a Factor-tree table. Find the LCD for $\frac{1}{z^2-25}+\frac{1}{5z+25}+\frac{1}{5z-25}$:

$\frac{1}{z^2-25}$				
$\frac{1}{5z+25}$				
$\frac{1}{5z-25}$				
LCD:				