

We will relook at some problems you completed yesterday, and analyze them further.

1.

a) What is this question asking us to do?	$\frac{5x - 6}{x^2 - 9} - \frac{4}{x - 3}$
b) Do we need a common denominator?	
c) Why do we need to factor the denominator of the first fraction?	$\frac{5x - 6}{(x - 3)(x + 3)} - \frac{4}{x - 3}$
d) What factoring shortcut was used to factor the denominator of the first fraction?	
e) Why is $(x + 3)(x - 3)$ the least common denominator?	
f) Which fraction needs to be manipulated, so that it has the common denominator?	
g) What is $\frac{x+3}{x+3}$ equal to?	
h) Why is the expression on the right multiplied by $(x + 3)$ in the denominator? Why is it also multiplied by $(x + 3)$ in the numerator?	$\frac{5x - 6}{(x - 3)(x + 3)} - \frac{4}{x - 3} \cdot \frac{x + 3}{x + 3}$
i) After you multiply the expression on the right by $\frac{x+3}{x+3}$ why do you not simplify before you add the two expressions together?	$\frac{5x - 6}{(x - 3)(x + 3)} - \frac{4(x + 3)}{(x - 3)(x + 3)}$
j) Once you have a common denominator and you begin to subtract the two expressions what happens to the denominator?	$\frac{(5x - 6) - 4(x + 3)}{(x - 3)(x + 3)}$
k) Once you have a common denominator and you begin to subtract the two expressions what happens to the numerators?	$\frac{5x - 6 - 4x - 12}{(x - 3)(x + 3)}$
l) What do you have to be careful of when simplifying the numerator when you subtract the rational expressions?	$\frac{x - 18}{(x - 3)(x + 3)}, \text{ when } x \neq 3, -3$
m) Why are there restrictions in the final answer?	

Follow Up Question: $\frac{2x-7}{x^2-36} - \frac{2}{x-6}$

2.

a) What is the question asking you to do?	$\frac{x-7}{x^2-3x+2} + \frac{4}{x^2-7x+10}$
b) Do you need a common denominator?	
c) Could you use $(x-2)(x-1)(x-5)(x-2)$ as a common denominator?	$\frac{x-7}{(x-2)(x-1)} + \frac{4}{(x-5)(x-2)}$
d) Why did we use the common denominator of $(x-2)(x-1)(x-5)$?	$\frac{x-5}{x-5} \cdot \frac{x-7}{(x-2)(x-1)} + \frac{4}{(x-5)(x-2)} \cdot \frac{x-1}{x-1}$
e) Why did we multiply the left expression by $\frac{x-5}{x-5}$ and the right expression by $\frac{x-1}{x-1}$?	$\frac{x^2-12x+35}{(x-5)(x-2)(x-1)} + \frac{4x-4}{(x-5)(x-2)(x-1)}$
d) How do you determine the restrictions on the final simplified expression?	$\frac{x^2-8x+31}{(x-5)(x-2)(x-1)}, \text{ when } x \neq 5, 2, 1$
e) Where did the expression $x^2-12x+35$ come from?	

Follow Up Question: $\frac{x-5}{2x^2-5x-3} + \frac{5}{2x^2+3x+1}$

3. Identify the error in the following problem.

$$\begin{aligned} & \frac{2x-5}{x} - \frac{4}{5x} - 4 \\ & \frac{5}{5} \cdot \frac{2x-5}{x} - \frac{4}{5x} - \frac{4}{1} \cdot \frac{5x}{5x} \\ & \frac{10x-5}{5x} - \frac{4}{5x} - \frac{20x}{5x} \\ & \frac{10x-5-4-20x}{5x} \\ & \frac{-10x-9}{5x} \\ & -2x - \frac{9}{5x} \end{aligned}$$

4. Complete the following.

$$\frac{2x^2-16}{x^2-4} - \frac{2}{2x+4}$$