Adding Algebraic Equations

Adding algebraic fractions	$\frac{1}{3x+6} + \frac{5}{x+2}$
Always factor the DENOMINATOR first	$\frac{1}{3(x+2)} + \frac{5}{(x+2)}$
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Perform the indicated operation and reduce if possible.

$$\frac{2}{x^2-4x+4} + \frac{5}{x^2-4} + \frac{3}{x^2+4x+4}$$ Factor all the denominators

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$$\frac{2}{(x-2)(x-2)} + \frac{5}{(x-2)(x+2)} + \frac{3}{(x+2)(x+2)}$$ To find the "smallest" common denominator, use the LCM. Look at all the factors in the denominator. Only use the common factors once, then, you must also use all the uncommon factors as well.

The LCM is $(x-2)(x-2)(x+2)(x+2)$

Fix the fractions so that each fraction has the LCM in the denominator. To do this, multiply both the numerator and the denominator by the missing factors of the LCM that the original denominator did not have

x

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

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