Adding and Subtracting

Just remember what these guys taught you!

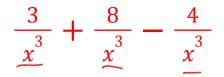
Remember when multiplying was hard, and adding was easy?

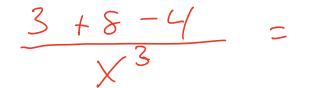


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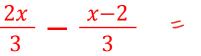
We'll do a quick example to see how much you remember / know about adding fractions.





Here's your algorithm. (The steps you need to take every time: I'll wait for you to write it down)

- 1. State the restrictions.
 - > Always. Every question. Every time. You can not divide by zero. It is nonsensical.
- 2. Find a common denominator.
 - > This is the step that makes adding difficult.
- 3. Write an equivalent fraction
 - Be able to write one denominator with all the numerator stuff above one line.
- 4. Add and subtract like terms in the numerator.
- 5. Make sure your final answer is simplified.

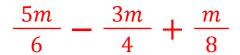


 $= \frac{2x - x + 2}{3}$ $= \frac{x + 2}{3}$

You try these two. Follow the algorithm:



Ok, all those were "best case scenario" you will not have questions that already have a common denominator. Getting one will be your job. Expect to do this every question.



There are 2 ways to get your common denominator. The *best* way is to see that 6(4)=4(6)=8(3)=24.

However, if you can't see the lowest common denominator like that you can always multiply all the bottom terms together to get a common denominator. 6(4)(8)=192... big numbers usually do not make the question easier though...

$$\frac{2n-7}{8n} - \frac{3n-4}{6n} \qquad n \neq 0$$

$$= \frac{3(2n-7) - 4(3n-4)}{24n}$$

$$= \frac{6n - 21 - (2n + 16)}{24n}$$

$$= -\frac{6n - 5}{24n}$$

$$\frac{2y}{5x^{2}} + \frac{1}{10x} - \frac{6}{15x^{3}} \qquad \chi \neq 0$$

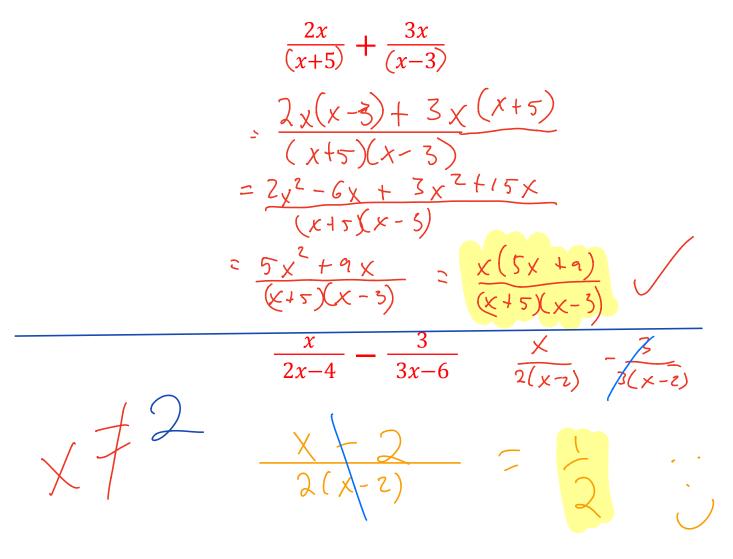
$$\frac{10xy + 3x^{2} - 12}{30x^{3}}$$

$$\frac{(4xy + x^{2} - 4)}{(10x^{3})}$$



Let's kick it up a notch!





$$\begin{array}{c}
\chi \neq -3i^{2}i^{4} \\
\chi \neq -3i^{2}i^{4} \\
\frac{4}{x^{2}+x-6} - \frac{5}{x^{2}-x-12} = \frac{4}{(x+3)(x-2)} - \frac{5}{(x-4)(x+3)} \\
= \frac{4}{(x+3)(x-2)(x-2)} \\
= \frac{4}{(x+3)(x-2)(x-4)} \\
= \frac{4}{(x+3)(x-4)(x-4)} \\
= \frac{4}{(x+3)(x-4)(x-4)} \\
= \frac{4}{(x+3)(x-4)} \\
= \frac{4}{(x+3)(x-4$$

$$(x + 3)(x - 2) \left(\frac{x - 1}{x^{2} + x - 6} - \frac{x - 2}{x^{2} + 4x + 3} \right) (x + 3)(x + 1)$$

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

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

$$= \frac{x^{2} - 1 - x^{2} - 4(x + 4)}{(x + 3)(x - 2)(x + 1)}$$

$$= \frac{-4(x + 3)}{(x + 3)(x - 2)(x + 1)}$$