

Adding and Subtracting Rational Expressions

**** RECALL:** What must be true for you to be able to add or subtract two fractions???

The same thing applies for rational expressions; we need the denominators to be THE SAME for us to be able to add or subtract. If the denominators are the same, we:

- ① Add or subtract the numerators (whatever the problem asks us to do) → this is the numerator of our answer
- ② Write your new numerator as a fraction over the like denominator

Examples of adding with denominators that are already the same:

a) $\frac{4}{3y} + \frac{7}{3y}$ ← Notice how the denominators are already the same

b) $\frac{3x}{x-2} + \frac{x}{x-2}$

c) $\frac{2x}{3x-4} + \frac{3x}{3x-4}$

Examples of subtraction when the denominators are already the same:

What do we have to be sure to do when subtracting???

a) $\frac{2}{x+3} - \frac{7}{x+3}$

b) $\frac{9x-3}{10x-4} - \frac{3x+5}{10x-4}$

c) $\frac{7x-3}{x^2-4} - \frac{6x-5}{x^2-4}$

d) $\frac{7x+5}{3x^2-x-2} - \frac{4x+3}{3x^2-x-2}$

e) $\frac{1}{2-b} - \frac{4}{2-b}$

f) $\frac{3x+2}{x+4} - \frac{x-6}{x+4}$