Adding & Subtracting Rational Expressions (same denominator)

Recall: $\frac{3}{5} + \frac{7}{5} = \frac{10}{5} = 2$

$\frac{5}{8} - \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$

To add/subtract rational expressions, you must have like denominators.

$$\frac{A}{C} + \frac{B}{C} = \frac{A+B}{C}$$

$$\frac{A}{C} - \frac{B}{C} = \frac{A-B}{C}$$

Ex.

① $\frac{5}{p} + \frac{11}{p} = \frac{16}{p}$

② $\frac{4}{y+3} - \frac{1}{y+3} = \frac{3}{y+3}$

③ $\frac{5m}{m+1} - \frac{(1+4m)}{m+1} = \frac{5m-1-4m}{m+1}$

$= \frac{m-1}{m+1}$

(4) $\frac{a+b}{2} - \frac{(a-b)}{2} = \frac{a+b-a+b}{2} = \frac{2b}{2}$

$= b$

(5) $\frac{x^2}{x+5} + \frac{5x}{x+5} = \frac{x^2+5x}{x+5} = \frac{x(x+5)}{x+5}$

$= x$

(6) $\frac{r^2-8r}{r-5} + \frac{15}{r-5} = \frac{r^2-8r+15}{r-5}$

$= \frac{(r-3)(r-5)}{r-5}$ ← $r-3$