

### 6.3 Adding & Subtracting Rational Expressions Part 2

*not easy to find common denominator*

Example: Adding or Subtracting Rational Expressions

*factor*

a)  $\frac{y^2 - 20}{y^2 - 4} + \frac{y - 2}{y + 2}$

$$= \frac{y^2 - 20}{(y + 2)(y - 2)} + \frac{y - 2}{y + 2} \cdot \frac{y - 2}{y - 2}$$

$$= \frac{y^2 - 20 + (y^2 - 4y + 4)}{(y + 2)(y - 2)}$$

$$= \frac{2y^2 - 4y - 16}{(y + 2)(y - 2)}$$

$$= \frac{2(y^2 - 2y - 8)}{(y + 2)(y - 2)}$$

$$= \frac{2(y - 4)(\cancel{y + 2})}{(\cancel{y + 2})(y - 2)}$$

$$= \boxed{\frac{2(y - 4)}{y - 2}}$$

b)  $\frac{x - 1}{x^2 + x - 6} - \frac{x - 2}{x^2 + 4x + 3} = \frac{x - 1}{(x + 3)(x - 2)} \cdot \frac{(x + 1)}{(x + 1)} - \frac{x - 2}{(x + 3)(x + 1)} \cdot \frac{(x - 2)}{(x - 2)}$

*npv*  $x \neq -3, 2, -1$

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

$$= \boxed{\frac{4x - 5}{(x + 3)(x - 2)(x + 1)}}$$