Questions

8f) pg. 318

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

$$= \frac{5(x+y)}{(x-y)}, \; x \neq y$$

Adding/Subtracting Rationals

Recall: Add & Subtract Fractions

1) $\frac{3}{14} - \frac{2}{7}$ * need common denominator

$\frac{3}{14} - \frac{4}{14} = \frac{-1}{14}$

For rationals, we do the same!

1) $\frac{3x}{x^2+6x-16} + \frac{2x}{x-2}$

Factor first!

$\frac{3x}{(x-2)(x+8)} + \frac{2x}{(x-2)}$

C.D: $(x-2)(x+8)$

$\frac{3x}{(x-2)(x+8)} + \frac{2x(x+8)}{(x-2)(x+8)}$

* Do not cross off common factors here

$\frac{3x+2x(x+8)}{(x-2)(x+8)}$

$\frac{3x+2x^2+16x}{(x-2)(x+8)}$

$\frac{2x^2+19x}{(x-2)(x+8)}$, $x \neq 2, -8$

2. $\frac{2x}{5x-20} - \frac{3}{x^2-16}$

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

C.D: $5(x-4)(x+4)$

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

$\frac{2x(x+4)-15}{5(x-4)(x+4)}$

$\frac{2x^2+8x-15}{5(x-4)(x+4)}$ ← check if this can factor: add & multiply -30, N/A

, $x \neq \pm 4$

3. $\frac{2x}{x^2-4} - \frac{1}{x-2}$

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

C.D: $(x-2)(x+2)$

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

$\frac{2x-x-2}{(x-2)(x+2)}$

$\frac{x-2}{(x-2)(x+2)} = \frac{1}{x+2}, x \neq \pm 2$

4. $\frac{-2}{3k^2+5k+2} + \frac{3}{k^2-7k-8}$

$\frac{-2}{(3k+2)(k+1)} + \frac{3}{(k-8)(k+1)}$

$\frac{-2(k-8)}{(3k+2)(k+1)(k-8)} + \frac{3(3k+2)}{(3k+2)(k+1)(k-8)}$

$\frac{-2(k-8)+3(3k+2)}{(3k+2)(k+1)(k-8)}$

$\frac{-2k+16+9k+6}{(3k+2)(k+1)(k-8)}$

$\frac{7k+22}{(3k+2)(k+1)(k-8)}, k \neq -\frac{2}{3}, -1, 8$

Practice pg. 336

6e, #7