The method: Subtracting with unlike denominators

Rewrite over the LCD. Subtract the whole second numerator: change the sign of every term in it.

$$\frac{6}{x-6} - \frac{9}{x+5} = \frac{6(x+5)}{(x-6)(x+5)} - \frac{9(x-6)}{(x-6)(x+5)}$$ rewrite each over the LCD, $(x-6)(x+5)$

$$\frac{6(x+5)-9(x-6)}{(x-6)(x+5)} = \frac{-3x+84}{(x-6)(x+5)}$$ subtract the whole second numerator, then combine like terms

$$\frac{x}{x-3} - \frac{9}{x-4} = \frac{x(x-4)}{(x-3)(x-4)} - \frac{9(x-3)}{(x-3)(x-4)}$$ rewrite each over the LCD, $(x-3)(x-4)$

$$\frac{x(x-4)-9(x-3)}{(x-3)(x-4)} = \frac{x^2-13x+27}{(x-3)(x-4)}$$ subtract the whole second numerator, then combine like terms

$$\frac{1}{2x} - \frac{8}{3x^2} = \frac{3x}{6x^2} - \frac{16}{6x^2} = \frac{3x-16}{6x^2}$$

rewrite each over the LCD, $6x^2$, then subtract the whole second numerator

Problems 1 and 2 worked out · Version 0A

$$\frac{7}{x+5} - \frac{7}{x-7} = \frac{7(x-7)}{(x+5)(x-7)} - \frac{7(x+5)}{(x+5)(x-7)}$$ rewrite each over the LCD, $(x+5)(x-7)$

$$\frac{7(x-7)-7(x+5)}{(x+5)(x-7)} = \frac{-84}{(x+5)(x-7)}$$ subtract the whole second numerator, then combine like terms

$$\frac{9}{4x} - \frac{7}{6x^2} = \frac{27x}{12x^2} - \frac{14}{12x^2} = \frac{27x-14}{12x^2}$$

rewrite each over the LCD, $12x^2$, then subtract the whole second numerator

Subtracting with unlike denominators · Version 0A

1) $\frac{-84}{(x+5)(x-7)}$ 2) $\frac{27x-14}{12x^2}$ 3) $\frac{x^2-6x+12}{(x-6)(x-4)}$ 4) $\frac{8x-5}{4x^2}$

5) $\frac{-x+8}{(x+2)(x+7)}$ 6) $\frac{15x-5}{6x^2}$ 7) $\frac{9x-8}{36x^2}$ 8) $\frac{4x+33}{(x+2)(x+7)}$

9) $\frac{-4x-28}{(x+3)(x-1)}$ 10) $\frac{x^2-5x+18}{(x-2)(x+4)}$ 11) $\frac{x^2-10x-6}{(x+2)(x-7)}$

12) $\frac{-6x+42}{(x-3)(x+5)}$ 13) $\frac{6x+58}{(x-5)(x+6)}$ 14) $\frac{x^2-8x-3}{(x+1)(x-5)}$

15) $\frac{-7x-60}{(x+7)(x-4)}$ 16) $\frac{9x-10}{12x^2}$ 17) $\frac{-6x-26}{(x+3)(x-1)}$

18) $\frac{x^2+x-4}{(x+2)(x+3)}$ 19) $\frac{14x-9}{12x^2}$ 20) $\frac{6x-44}{(x-5)(x-7)}$

21) $\frac{4x+16}{(x-5)(x-1)}$ 22) $\frac{64x-5}{8x^2}$ 23) $\frac{6}{(x-4)(x-1)}$

24) $\frac{2x+20}{(x+4)(x+6)}$ 25) $\frac{-3x-39}{(x+3)(x-7)}$ 26) $\frac{x^2+x-18}{(x+3)(x+7)}$

27) $\frac{x^2-11x-49}{(x+7)(x-4)}$ 28) $\frac{x^2-35}{(x+5)(x+7)}$ 29) $\frac{-4x-38}{(x+5)(x-1)}$

30) $\frac{x^2-5x+20}{(x-5)(x-1)}$ 31) $\frac{x^2+3}{(x-3)(x+1)}$ 32) $\frac{x^2-12x-6}{(x+1)(x-6)}$

33) $\frac{4x+26}{(x+4)(x+6)}$ 34) $\frac{x+11}{(x+5)(x+6)}$