

Solutions +/- Quiz over Rationals

$$\textcircled{1} \frac{1}{9x} + \frac{11}{12x^2} = \frac{1}{3 \cdot 3x} + \frac{11}{2 \cdot 2 \cdot 3 \cdot x \cdot x}$$

$$\text{LCD}(9x, 12x^2) = 36x^2$$

$$\frac{\begin{array}{cc} 3 & 3 & x \\ 2 & 2 & 3 & x & x \end{array}}{2 & 2 & 3 & 3 & x & x} = \boxed{36x^2} \rightarrow \text{LCD}$$

$$\frac{1}{9x} + \frac{11}{12x^2} = \frac{1}{9x} \frac{4x}{4x} + \frac{11}{12x^2} \frac{3}{3} = \boxed{\frac{4x + 33}{36x^2}}$$

$$\textcircled{2} \frac{5x}{x-6} - \frac{x+7}{x+4} = \frac{5x}{x-6} + \frac{-1(x+7)}{x+4}$$

$$\text{LCD}((x-6), (x+4)) = (x-6)(x+4)$$

$$\frac{5x}{x-6} \cdot \frac{x+4}{x+4} + \frac{-1(x+7)}{(x+4)} \frac{(x-6)}{(x-6)} = \frac{5x^2 + 20x}{\text{LCD}} + \frac{-1(x^2 + 1x + 4x - 24)}{\text{LCD}}$$

$$= \frac{5x^2 + 20x}{\text{LCD}} + \frac{-x^2 + x + 4x - 24}{\text{LCD}} = \boxed{\frac{4x^2 + 19x - 24}{(x-6)(x+4)}}$$

Solutions +/- Quiz Rationals

$$\textcircled{3} \frac{5}{7x^2-63} + \frac{7}{3x^2+4x-15} = \frac{5}{7(x^2-9)} + \frac{7}{(3x-5)(x+3)}$$

$$\frac{-45x^2}{-45x^2}$$

$$1 \times 45x$$

$$3x \ 15x$$

$$\boxed{15x \ 9x} \rightarrow 4x$$

Grouping

$$3x^2 + 9x - 5x - 15$$

$$3x(x+3) - 5(x+3)$$

$$(x+3)(3x-5)$$

$$\frac{5}{7x^2-63} + \frac{7}{3x^2+4x-15} = \frac{5}{7(x-3)(x+3)} + \frac{7}{(3x-5)(x+3)}$$

$$\text{LCD } [(7x^2-63), (3x^2+4x-15)]$$

$$7(x-3)(x+3)$$

$$(x+3)(3x-5)$$

$$\boxed{7(x-3)(x+3)(3x-5)} \rightarrow \text{LCD}$$

$$\frac{5}{7(x-3)(x+3)} \frac{(3x-5)}{(3x-5)} + \frac{7}{(3x-5)(x+3)} \frac{7(x-3)}{7(x-3)}$$

$$\frac{15x-25}{\text{LCD}}$$

$$+ \frac{49x-147}{\text{LCD}}$$

$$= \boxed{\frac{64x-172}{7(3x-5)(x+3)(x-3)}}$$

Solutions +/- Rationals Quiz

$$(4) \quad \frac{3}{x^2-21x+20} - \frac{8}{x^2-15x+14}$$

$$\frac{3}{(x-20)(x-1)} + \frac{-8}{(x-14)(x-1)}$$

$$\text{LCD } ((x^2-21x+20), (x^2-15x+14))$$

$$\frac{(x-20)(x-1)}{(x-1)(x-14)}$$

$$\boxed{(x-20)(x-1)(x-14)} - \text{LCD}$$

$$\frac{3}{(x-20)(x-1)} \cdot \frac{(x-14)}{(x-14)} + \frac{-8}{(x-14)(x-1)} \cdot \frac{(x-20)}{(x-20)}$$

$$\frac{3x-42}{\text{LCD}} + \frac{-8x+160}{\text{LCD}}$$

$$\boxed{\frac{-5x+118}{(x-20)(x-1)(x-14)}}$$

Solutions + / - Quiz Rationals Quiz

$$\textcircled{5} \quad \frac{7}{6x+30} + \frac{2x}{3x^2-27} = \frac{7}{6(x+5)} + \frac{2x}{3(x^2-9)}$$

$$= \frac{7}{2 \cdot 3(x+5)} + \frac{2x}{3(x-3)(x+3)}$$

$$\text{LCD}(6x+30, 3x^2-27) = \frac{2 \cdot 3(x+5)(x-3)(x+3)}{3}$$

$$6(x+5)(x+3)(x-3)$$

$$\frac{7}{6(x+5)} \cdot \frac{(x-3)(x+3)}{(x-3)(x+3)} + \frac{2x}{3(x-3)(x+3)} \cdot \frac{2(x+5)}{2(x+5)}$$

$$\frac{7(x^2-9)}{\text{LCD}} + \frac{4x(x+5)}{\text{LCD}}$$

$$\frac{7x^2-63}{\text{LCD}} + \frac{4x^2+20x}{\text{LCD}}$$

$$\frac{11x^2 + 20x - 63}{6(x+5)(x-3)(x+3)}$$

Solutions Quiz +/- Rationals

$$\textcircled{6} \quad \frac{1}{2x-10} - \frac{7}{x+5} + \frac{4}{x^2-25} = \frac{1}{2(x-5)} + \frac{-7}{x+5} + \frac{4}{(x-5)(x+5)}$$

$$\text{LCD } (2x-10, x+5, x^2-25)$$

$$2(x-5) \quad (x+5)$$

$$(x-5) \quad (x+5)$$

$$\boxed{2(x-5)(x+5)} - \text{LCD}$$

$$\frac{1}{2(x-5)} \cdot \frac{(x+5)}{(x+5)} + \frac{-7}{(x+5)} \cdot \frac{2(x-5)}{2(x-5)} + \frac{4}{(x-5)(x+5)} \cdot \frac{2}{2}$$

$$\frac{x+5}{\text{LCD}} + \frac{-14(x-5)}{\text{LCD}} + \frac{8}{\text{LCD}}$$

$$\frac{x+5}{\text{LCD}} + \frac{-14x+70}{\text{LCD}} + \frac{8}{\text{LCD}}$$

$$\boxed{\frac{-13x+83}{2(x-5)(x+5)}} = \boxed{\frac{-13x+83}{2x^2-50}}$$