



Equations with Fractions SOLUTIONS

1. $x = 3$ $x = -6$
2. $x = 8$ $x = -4$
3. $x = 3$ $x = 2$
4. $x = 4$ $x = \frac{10}{3}$
5. $x = 2$ $x = -7$ (S*)
6. $x = 2$ $x = -10$
7. $x = 5$ $x = \frac{10}{3}$
8. $x = -1$ $x = -\frac{19}{5}$ (S*)
9. $x = 8$ $x = -3$
10. $x = 7$ $x = -6$
11. $x = 5$ $x = \frac{5}{3}$ (S*)
12. $x = 2$ $x = \frac{13}{4}$

Question 5

$$\frac{1}{x+1} - \frac{1}{6} = \frac{1}{x+4}$$

$$\text{L.C.D.} = (x+1)(6)(x+4)$$

$$\begin{aligned} (x+1)(6)(x+4) \frac{1}{x+1} - (x+1)(6)(x+4) \frac{1}{6} &= (x+1)(6)(x+4) \frac{1}{x+4} \\ (6)(x+4)(1) - (x+1)(x+4)(1) &= (x+1)(6)(1) \\ (6x+24)(1) - [x(x+4) + 1(x+4)](1) &= (6x+6)(1) \\ 6x+24 - [x^2+4x+1x+4](1) &= 6x+6 \\ 6x+24 - [x^2+5x+4] &= 6x+6 \\ 6x+24 - x^2 - 5x - 4 - 6x - 6 &= 0 \\ -x^2 - 5x + 14 &= 0 \quad \times (-1) \\ x^2 + 5x - 14 &= 0 \\ (x+7)(x-2) &= 0 \\ x = -7 \quad x = 2 \end{aligned}$$



**Question 8**

$$\frac{1}{x+3} + \frac{3}{x+5} = \frac{5}{4}$$

$$\text{L.C.D.} = (x+3)(x+5)(4)$$

$$\begin{aligned} (x+3)(x+5)(4)\frac{1}{x+3} + (x+3)(x+5)(4)\frac{3}{x+5} &= (x+3)(x+5)(4)\frac{5}{4} \\ (x+5)(4)(1) + (x+3)(4)(3) &= (x+3)(x+5)(5) \\ (4x+20)(1) + (4x+12)(3) &= [x(x+5) + 3(x+5)](5) \\ 4x+20+12x+36 &= [x^2+5x+3x+15](5) \\ 16x+56 &= [x^2+8x+15](5) \\ 16x+56 &= 5x^2+40x+75 \\ 16x+56-5x^2-40x-75 &= 0 \\ -5x^2-24x-19 &= 0 \quad \times (-1) \\ 5x^2+24x+19 &= 0 \\ (5x+19)(x+1) &= 0 \\ x = -\frac{19}{5} \quad x = -1 \end{aligned}$$

Question 11

$$\frac{3}{x-2} + \frac{8}{x-1} = 3$$

$$\text{L.C.D.} = (x-2)(x-1)$$

$$\begin{aligned} (x-2)(x-1)\frac{3}{x-2} + (x-2)(x-1)\frac{8}{x-1} &= (x-2)(x-1)3 \\ (x-1)(3) + (x-2)8 &= (x-2)(x-1)(3) \\ 3x-3+8x-16 &= [x(x-1)-2(x-1)](3) \\ 11x-19 &= [x^2-1x-2x+2](3) \\ 11x-19 &= [x^2-3x+2](3) \\ 11x-19 &= 3x^2-9x+6 \\ 11x-19-3x^2+9x-6 &= 0 \\ -3x^2+20x-25 &= 0 \quad \times (-1) \\ 3x^2-20x+25 &= 0 \\ (3x-5)(x-5) &= 0 \\ x = \frac{5}{3} \quad x = 5 \end{aligned}$$

