

Section 7.4

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for 197-230 use quick check because a complete check can be long

$$198) \quad \frac{6}{3} - \frac{2}{d} = \frac{4}{9}$$

$$\frac{2}{1} - \frac{2}{d} = \frac{4}{9} \quad LCD = 9d$$

$$\left(\frac{9d}{1}\right)\left(\frac{2}{1} - \frac{2}{d}\right) = \left(\frac{4}{9}\right)\left(\frac{9d}{1}\right)$$

$$2(9d) - 2(9) = 4(d)$$

$$18d - 18 = 4d$$

$$\begin{array}{r} -4d + 18 \quad -4d + 18 \\ \hline 14d = 18 \\ \frac{14d}{14} = \frac{18}{14} \\ d = \frac{9}{7} \end{array}$$

quick check

$$\frac{6}{3} - \frac{2}{\left(\frac{9}{7}\right)} = \frac{4}{9}$$

OK denominator $\neq 0$

$$\boxed{d = \frac{9}{7}}$$

$$200) \quad \frac{3}{8} + \frac{2}{y} = \frac{1}{4}$$

$$\frac{3}{(2)^3} + \frac{2}{y} = \frac{1}{(2)^2} \quad LCD = (2)^3(y)$$

$$\left(\frac{(2)^3(y)}{1}\right)\left(\frac{3}{(2)^3} + \frac{2}{y}\right) = \left(\frac{1}{(2)^2}\right)\left(\frac{(2)^3(y)}{1}\right)$$

$$3(y) + 2(2)^3 = 1(2)(y)$$

$$3y + 16 = 2y$$

$$\begin{array}{r} -2y - 16 \quad -2y - 16 \\ \hline y = -16 \end{array}$$

quick check

$$\frac{3}{8} + \frac{2}{(-16)} = \frac{1}{4}$$

OK denominator $\neq 0$

$$\boxed{y = -16}$$

202)

$$1 + \frac{4}{n} = \frac{21}{n^2} \quad \text{LCD} = n^2$$

$$\left(\frac{n^2}{1}\right)\left(\frac{1}{1} + \frac{4}{n}\right) = \left(\frac{21}{n^2}\right)\left(\frac{n^2}{1}\right)$$

$$1(n^2) + 4(n) = 21$$

$$n^2 + 4n = 21$$

$$\begin{array}{r} n^2 + 4n = 21 \\ -21 \quad -21 \\ \hline \end{array}$$

$$n^2 + 4n - 21 = 0$$

$$(n+7)(n-3) = 0$$

$$n+7=0$$

$$-7 -7$$

$$n = -7$$

quick check

$$1 + \frac{4}{(-7)} = \frac{21}{(-7)^2}$$

OK, denominator $\neq 0$

$$n-3=0$$

$$+3 +3$$

$$n = 3$$

quick check

$$1 + \frac{4}{(3)} = \frac{21}{(3)^2}$$

OK, denominator $\neq 0$

$$n = -7, n = 3$$

204)

$$1 - \frac{7}{q} = \frac{-6}{q^2} \quad \text{LCD} = q^2$$

$$\left(\frac{q^2}{1}\right)\left(\frac{1}{1} - \frac{7}{q}\right) = \left(\frac{-6}{q^2}\right)\left(\frac{q^2}{1}\right)$$

$$1(q^2) - 7(q) = -6$$

$$q^2 - 7q = -6$$

$$\begin{array}{r} q^2 - 7q = -6 \\ +6 \quad +6 \\ \hline \end{array}$$

$$q^2 - 7q + 6 = 0$$

$$(q-1)(q-6) = 0$$

$$q-1=0$$

$$+1 +1$$

$$q = 1$$

quick check

$$1 - \frac{7}{(1)} = \frac{-6}{(1)^2}$$

OK, denominator $\neq 0$

$$q-6=0$$

$$+6 +6$$

$$q = 6$$

quick check

$$1 - \frac{7}{(6)} = \frac{-6}{(6)^2}$$

OK, denominator $\neq 0$

$$q = 1, q = 6$$

$$206) \quad \frac{8}{2w+1} = \frac{3}{w}$$

$$\frac{8}{(2w+1)} = \frac{3}{w} \quad \text{LCD} = w(2w+1)$$

$$\left(\frac{w(2w+1)}{1} \right) \left(\frac{8}{(2w+1)} \right) = \left(\frac{3}{w} \right) \left(\frac{w(2w+1)}{1} \right)$$

$$8(w) = 3(2w+1)$$

$$8w = 6w + 3$$

$$\begin{array}{r} -6w \quad -6w \\ \hline \end{array}$$

$$\frac{2w}{2} = \frac{3}{2}$$

$$w = \frac{3}{2}$$

quick check

$$\frac{8}{2\left(\frac{3}{2}\right)+1} = \frac{3}{\left(\frac{3}{2}\right)}$$

↑

↑

OK, denominator $\neq 0$

$$\boxed{w = \frac{3}{2}}$$

$$208) \quad \frac{5}{y-9} + \frac{1}{y+9} = \frac{18}{y^2-81}$$

$$\frac{5}{(y-9)} + \frac{1}{(y+9)} = \frac{18}{(y+9)(y-9)}$$

$$\text{LCD} = (y+9)(y-9)$$

$$\left(\frac{(y+9)(y-9)}{1} \right) \left(\frac{5}{(y-9)} + \frac{1}{(y+9)} \right) = \left(\frac{18}{(y+9)(y-9)} \right) \left(\frac{(y+9)(y-9)}{1} \right)$$

$$5(y+9) + 1(y-9) = 18$$

$$5y + 45 + y - 9 = 18$$

$$6y + 36 = 18$$

$$\begin{array}{r} -36 \quad -36 \\ \hline \end{array}$$

$$\frac{6y}{6} = \frac{-18}{6}$$

$$y = -3$$

quick check

$$\frac{5}{(-3)-9} + \frac{1}{(-3)+9} = \frac{18}{(-3)^2-81}$$

←

↑

→

OK, denominator $\neq 0$

$$\boxed{y = -3}$$

$$210) \quad \frac{9}{a+11} - \frac{6}{a-11} = \frac{6}{a^2-121}$$

$$\frac{9}{(a+11)} - \frac{6}{(a-11)} = \frac{6}{(a+11)(a-11)}$$

$$LCD = (a+11)(a-11)$$

$$\left(\frac{(a+11)(a-11)}{1} \right) \left(\frac{9}{(a+11)} - \frac{6}{(a-11)} \right) = \left(\frac{6}{(a+11)(a-11)} \right) \left(\frac{(a+11)(a-11)}{1} \right)$$

$$9(a-11) - 6(a+11) = 6$$

$$9a - 99 - 6a - 66 = 6$$

$$3a - 165 = 6$$

$$+165 \quad +165$$

$$\frac{3a}{3} = \frac{171}{3}$$

$$a = 57$$

quick check

$$\frac{9}{(57)+11} - \frac{6}{(57)-11} = \frac{6}{(57)^2-11}$$

OK, denominator $\neq 0$

$$\boxed{a = 57}$$

$$212) \quad \frac{2}{x+7} - \frac{3}{x-3} = 1$$

$$\frac{2}{(x+7)} - \frac{3}{(x-3)} = 1$$

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

$$\left(\frac{(x+7)(x-3)}{1} \right) \left(\frac{2}{(x+7)} - \frac{3}{(x-3)} \right) = \left(\frac{1}{1} \right) \left(\frac{(x+7)(x-3)}{1} \right)$$

$$2(x-3) - 3(x+7) = 1(x+7)(x-3)$$

$$2x - 6 - 3x - 21 = x^2 + 4x - 21$$

$$-x - 27 = x^2 + 4x - 21$$

$$+x + 27$$

$$0 = x^2 + 5x + 6$$

$$0 = (x+3)(x+2)$$

$$\begin{array}{l} x+3=0 \\ -3-3 \\ x=-3 \end{array}$$

$$\begin{array}{l} x+2=0 \\ -2-2 \\ x=-2 \end{array}$$

quick check

$$\frac{2}{(-3)+7} - \frac{3}{(-3)-3} = 1$$

OK, denominator $\neq 0$

quick check

$$\frac{2}{(-2)+7} - \frac{3}{(-2)-3} = 1$$

OK, denominator $\neq 0$

$$\boxed{x = -3, x = -2}$$

$$214) \frac{w+8}{w^2-11w+28} = \frac{5}{w-7} + \frac{2}{w-4}$$

$$\frac{w+8}{(w-4)(w-7)} = \frac{5}{(w-7)} + \frac{2}{(w-4)} \quad LCD = (w-4)(w-7)$$

$$\left(\frac{(w-4)(w-7)}{1} \right) \left(\frac{w+8}{(w-4)(w-7)} \right) = \left(\frac{5}{(w-7)} + \frac{2}{(w-4)} \right) \left(\frac{(w-4)(w-7)}{1} \right)$$

$$w+8 = 5(w-4) + 2(w-7)$$

$$w+8 = 5w-20 + 2w-14$$

$$\begin{array}{r} w+8 = 7w-34 \\ -w+34 \quad -w+34 \\ \hline \end{array}$$

$$\frac{42}{6} = \frac{6w}{6}$$

$$7 = w$$

quick check

$$\frac{(7)+8}{(7)^2-11(7)+28} = \frac{5}{(7)-7} + \frac{2}{(7)-4}$$

↑

no, denominator = 0

no solution

$$216) \frac{y-5}{y^2-4y-5} = \frac{1}{y+1} + \frac{1}{y-5}$$

$$\frac{y-5}{(y+1)(y-5)} = \frac{1}{(y+1)} + \frac{1}{(y-5)} \quad LCD = (y+1)(y-5)$$

$$\left(\frac{(y+1)(y-5)}{1} \right) \left(\frac{y-5}{(y+1)(y-5)} \right) = \left(\frac{1}{(y+1)} + \frac{1}{(y-5)} \right) \left(\frac{(y+1)(y-5)}{1} \right)$$

$$y-5 = 1(y-5) + 1(y+1)$$

216) continued...

$$\begin{aligned}
 y - 5 &= y - 5 + y + 1 \\
 y - 5 &= 2y - 4 \\
 \frac{-y + 4}{-1} &= \frac{-y + 4}{-1} \\
 -1 &= y
 \end{aligned}$$

quick check

$$\frac{(-1) - 5}{(-1)^2 - 4(-1) - 5} = \frac{1}{(-1) + 1} + \frac{1}{(-1) + 5}$$

denominator = 0

no, no solution

218)

$$\frac{c+3}{12c} + \frac{c}{36} = \frac{1}{4c}$$

$$\frac{(c+3)}{(2)^2(3)c} + \frac{c}{(2)^2(3)^2} = \frac{1}{(2)^2c}$$

$$LCD = (2)^2(3)^2(c)$$

$$\left(\frac{(2)^2(3)^2(c)}{1} \right) \left(\frac{(c+3)}{(2)^2(3)c} + \frac{c}{(2)^2(3)^2} \right) = \left(\frac{1}{(2)^2c} \right) \left(\frac{(2)^2(3)^2(c)}{1} \right)$$

$$(c+3)(3) + c(c) = 1(3)^2$$

$$\begin{aligned}
 3c + 9 + c^2 &= 9 \\
 -9 &\quad -9
 \end{aligned}$$

$$c^2 + 3c = 0$$

$$c(c+3) = 0$$

$$c = 0$$

quick check

$$\frac{(0)+3}{12(0)} + \frac{(0)}{36} = \frac{1}{4(0)}$$

no denominator = 0

$$\begin{aligned}
 c+3 &= 0 \\
 -3 &\quad -3 \\
 \hline
 c &= -3
 \end{aligned}$$

$$\frac{(-3)+3}{12(-3)} + \frac{(-3)}{36} = \frac{1}{4(-3)}$$

OK, denominator $\neq 0$

$$\boxed{c = -3}$$

$$220) \quad \frac{m}{m+5} = \frac{50}{m^2-25} + 6$$

$$\frac{m}{(m+5)} = \frac{50}{(m+5)(m-5)} + 6 \quad \text{LCD} = (m+5)(m-5)$$

$$\left(\frac{(m+5)(m-5)}{1} \right) \left(\frac{m}{(m+5)} \right) = \left(\frac{50}{(m+5)(m-5)} + \frac{6}{1} \right) \left(\frac{(m+5)(m-5)}{1} \right)$$

$$m(m-5) = 50 + 6(m+5)(m-5)$$

$$m^2 - 5m = 50 + 6(m^2 - 25)$$

$$m^2 - 5m = 50 + 6m^2 - 150$$

$$m^2 - 5m = 6m^2 - 100$$

$$-m^2 + 5m \quad -m^2 + 5m$$

$$0 = 5m^2 + 5m - 100$$

$$0 = 5(m^2 + m - 20)$$

$$0 = 5(m+5)(m-4)$$

$$\begin{array}{r} m+5=0 \\ -5 \quad -5 \\ \hline m=-5 \end{array}$$

quick check

$$\frac{(-5)}{(-5)+5} = \frac{50}{(-5)^2-25} + 6$$

no, denominator = 0

$$\begin{array}{r} m-4=0 \\ +4 \quad +4 \\ \hline m=4 \end{array}$$

quick check

$$\frac{(4)}{(4)-5} = \frac{50}{(4)^2-25} + 6$$

OK, denominator $\neq 0$

$$\boxed{m=4}$$

222)

7.4 L8

$$\frac{p}{p+7} - 8 = \frac{98}{p^2-49}$$

$$\frac{p}{(p+7)} - 8 = \frac{98}{(p+7)(p-7)} \quad LCD = (p+7)(p-7)$$

$$\left(\frac{(p+7)(p-7)}{1} \right) \left(\frac{p}{(p+7)} - \frac{8}{1} \right) = \left(\frac{98}{(p+7)(p-7)} \right) \left(\frac{(p+7)(p-7)}{1} \right)$$

$$p(p-7) - 8(p+7)(p-7) = 98$$

$$p^2 - 7p - 8(p^2 - 49) = 98$$

$$p^2 - 7p - 8p^2 + 392 = 98$$

$$-7p^2 - 7p + 392 = 98$$

$$+7p^2 + 7p - 392 - 392 + 7p^2 + 7p$$

$$0 = 7p^2 + 7p - 294$$

$$0 = 7(p^2 + p - 42)$$

$$0 = 7(p+7)(p-6)$$

$$\begin{array}{r} p+7=0 \\ -7-7 \\ \hline p=-7 \end{array}$$

quick check

$$\frac{(-7)}{(-7)+7} - 8 = \frac{98}{(-7)^2-49}$$

no, denominator = 0

$$\begin{array}{r} p-6=0 \\ +6+6 \\ \hline p=6 \end{array}$$

quick check

$$\frac{(6)}{(6)+7} - 8 = \frac{98}{(6)^2-49}$$

OK, denominator $\neq 0$

$$\boxed{p=6}$$

$$224) \quad \frac{n}{3n-15} - \frac{1}{4n+20} = \frac{3n^2+17n+40}{12n^2-300}$$

$$\frac{n}{3(n-5)} - \frac{1}{4(n+5)} = \frac{3n^2+17n+40}{12(n+5)(n-5)} \quad LCD = 12(n+5)(n-5)$$

$$\left(\frac{12(n+5)(n-5)}{1} \right) \left(\frac{n}{3(n-5)} - \frac{1}{4(n+5)} \right) = \left(\frac{3n^2+17n+40}{12(n+5)(n-5)} \right) \left(\frac{12(n+5)(n-5)}{1} \right)$$

$$n(4)(n+5) - 1(3)(n-5) = 3n^2 + 17n + 40$$

$$4n^2 + 20n - 3n + 15 = 3n^2 + 17n + 40$$

$$4n^2 + 17n + 15 = 3n^2 + 17n + 40$$

$$\begin{array}{r} 4n^2 + 17n + 15 \\ -3n^2 - 17n - 40 \\ \hline \end{array}$$

$$n^2 - 25 = 0$$

$$(n+5)(n-5) = 0$$

$$\begin{array}{r} n+5=0 \\ -5 \quad -5 \\ \hline n = -5 \end{array}$$

quick check

$$\frac{(-5)}{3(-5)-15} - \frac{1}{4(-5)+20} = \frac{3(-5)^2+17(-5)+40}{12(-5)^2-300}$$

no, denominator = 0

$$\begin{array}{r} n-5=0 \\ +5 \quad +5 \\ \hline n = 5 \end{array}$$

quick check

$$\frac{(5)}{3(5)-15} - \frac{1}{4(5)+20} = \frac{3(5)^2+17(5)+40}{12(5)^2-300}$$

no, denominator = 0

no solution

$$226) \quad \frac{x}{6x+12} - \frac{5}{2x+10} = \frac{x^2-23x+70}{12x^2+36x-120}$$

$$\frac{x}{6(x-2)} - \frac{5}{2(x+5)} = \frac{x^2-23x+70}{12(x+5)(x-2)} \quad \text{LCD} = 12(x+5)(x-2)$$

$$\left(\frac{12(x+5)(x-2)}{1} \right) \left(\frac{x}{6(x-2)} - \frac{5}{2(x+5)} \right) = \left(\frac{x^2-23x+70}{12(x+5)(x-2)} \right) \left(\frac{12(x+5)(x-2)}{1} \right)$$

$$x(2)(x+5) - 5(6)(x-2) = x^2 - 23x + 70$$

$$2x^2 + 10x - 30x + 60 = x^2 - 23x + 70$$

$$2x^2 - 20x + 60 = x^2 - 23x + 70$$

$$-x^2 + 23x - 70 \quad -x^2 + 23x - 70$$

$$x^2 + 3x - 10 = 0$$

$$(x+5)(x-2) = 0$$

$$\begin{array}{r} x+5=0 \\ -5 \quad -5 \\ \hline x=-5 \end{array}$$

quick check

$$\frac{(-5)}{6(-5)-12} - \frac{5}{2(-5)+10} = \frac{(-5)^2-23(-5)+70}{12(-5)^2+36(-5)-120}$$

no, denominator = 0

$$\begin{array}{r} x-2=0 \\ +2 \quad +2 \\ \hline x=2 \end{array}$$

quick check

$$\frac{(2)}{6(2)-12} - \frac{5}{2(2)+10} = \frac{(2)^2-23(2)+70}{12(2)^2+36(2)-120}$$

no, denominator = 0

no solution

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$$228) \frac{5}{x^2+4x+3} + \frac{2}{x^2+x-6} = \frac{3}{x^2-x-2}$$

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

$$L(D) = (x+3)(x+1)(x-2)$$

$$\left(\frac{(x+3)(x+1)(x-2)}{1} \right) \left(\frac{5}{(x+3)(x+1)} + \frac{2}{(x+3)(x-2)} \right) = \left(\frac{3}{(x+1)(x-2)} \right) \left(\frac{(x+3)(x+1)(x-2)}{1} \right)$$

$$5(x-2) + 2(x+1) = 3(x+3)$$

$$5x - 10 + 2x + 2 = 3x + 9$$

$$7x - 8 = 3x + 9$$

$$\begin{array}{r} -3x + 8 \\ -3x + 8 \end{array}$$

$$\frac{4x}{4} = \frac{17}{4}$$

$$x = \frac{17}{4}$$

quick check

$$\frac{5}{\left(\left(\frac{17}{4}\right)+3\right)\left(\left(\frac{17}{4}\right)+1\right)} + \frac{2}{\left(\left(\frac{17}{4}\right)+3\right)\left(\left(\frac{17}{4}\right)-2\right)} = \frac{3}{\left(\left(\frac{17}{4}\right)+1\right)\left(\left(\frac{17}{4}\right)-2\right)}$$

OK, denominator $\neq 0$

$$\boxed{x = \frac{17}{4}}$$

$$230) \quad \frac{2}{x^2+2x-3} + \frac{3}{x^2+4x+3} = \frac{6}{x^2-1}$$

$$\frac{2}{(x+3)(x-1)} + \frac{3}{(x+3)(x+1)} = \frac{6}{(x+1)(x-1)} \quad L.C.D. = (x+3)(x+1)(x-1)$$

$$\left(\frac{(x+3)(x+1)(x-1)}{1} \right) \left(\frac{2}{(x+3)(x-1)} + \frac{3}{(x+3)(x+1)} \right) = \left(\frac{6}{(x+1)(x-1)} \right) \left(\frac{(x+3)(x+1)(x-1)}{1} \right)$$

$$2(x+1) + 3(x-1) = 6(x+3)$$

$$2x + 2 + 3x - 3 = 6x + 18$$

$$5x - 1 = 6x + 18$$

$$\begin{array}{r} 5x - 1 \\ -5x - 18 \\ \hline \end{array} \quad \begin{array}{r} 6x + 18 \\ -5x - 18 \\ \hline \end{array}$$

$$-19 = x$$

quick check

$$\frac{2}{((-19)+3)((-19)-1)} + \frac{3}{((-19)+3)((-19)+1)} = \frac{6}{((-19)+1)((-19)-1)}$$

OK, denominator $\neq 0$

$$\boxed{x = -19}$$

$$232) f(x) = \frac{x+1}{x^2-2x-3}$$

$$a) \text{ V.A.? } x^2-2x-3=0$$

$$(x+1)(x-3)=0$$

$$\begin{array}{l|l} x+1=0 & x-3=0 \\ -1-1 & +3+3 \\ \hline x=-1 & x=3 \end{array}$$

$$\text{domain: } \underline{\underline{(-\infty, -1) \cup (-1, 3) \cup (3, \infty)}}$$

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

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

$$\text{LCD} = (x+1)(x-3)$$

$$\left(\frac{(x+1)(x-3)}{1} \right) \left(\frac{1}{1} \right) = \left(\frac{(x+1)}{(x+1)(x-3)} \right) \left(\frac{(x+1)(x-3)}{1} \right)$$

$$1(x+1)(x-3) = (x+1)$$

$$\begin{array}{r} x^2-2x-3 = x+1 \\ -x \quad -1 \quad -x \quad -1 \\ \hline \end{array}$$

$$x^2-3x-4 = 0$$

$$(x+1)(x-4) = 0$$

$$\begin{array}{l} x+1=0 \\ -1 \quad -1 \\ \hline x=-1 \end{array}$$

$$\begin{array}{l} x-4=0 \\ +4 \quad +4 \\ \hline x=4 \end{array}$$

quick check

$$1 = \frac{(-1)+1}{((-1)+1)((-1)-3)}$$

↑
no, denominator = 0

quick check

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

OK, denominator $\neq 0$

$$\boxed{x=4}$$

$$c) \underline{\underline{(4, 1)}}$$

$$234) f(x) = \frac{5-x}{x^2+5x+6}$$

$$a) \text{ V.A.? } x^2+5x+6=0$$

$$(x+3)(x+2)=0$$

$$\begin{array}{r|l} x+3=0 & x+2=0 \\ -3 & -2 \\ \hline x=-3 & x=-2 \end{array}$$

$$\text{domain: } (-\infty, -3) \cup (-3, -2) \cup (-2, \infty)$$

$$b) 3 = f(x) = \frac{5-x}{x^2+5x+6}$$

$$3 = \frac{(5-x)}{(x+3)(x+2)} \quad \text{LCD} = (x+3)(x+2)$$

$$\left(\frac{(x+3)(x+2)}{1} \right) \left(\frac{3}{1} \right) = \left(\frac{(5-x)}{(x+3)(x+2)} \right) \left(\frac{(x+3)(x+2)}{1} \right)$$

$$3(x+3)(x+2) = (5-x)$$

$$3(x^2+5x+6) = 5-x$$

$$\begin{array}{r} 3x^2+15x+18 = 5-x \\ +x \quad -5 \quad -5 \quad +x \\ \hline \end{array}$$

$$3x^2+16x+13=0$$

$$(3x+13)(x+1)=0$$

$$\begin{array}{r} 3x+13=0 \\ -13 \quad -13 \\ \hline \end{array}$$

$$\frac{3x}{3} = \frac{-13}{3}$$

$$x = \frac{-13}{3}$$

quick check

$$3 = \frac{5 - (-\frac{13}{3})}{((-\frac{13}{3})+3)((-\frac{13}{3})+2)}$$

OK, denominator $\neq 0$

$$\begin{array}{r} x+1=0 \\ -1 \quad -1 \\ \hline x=-1 \end{array}$$

quick check

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

OK, denominator $\neq 0$

$$c) \left(\frac{-13}{3}, 3 \right)$$

$$\left(-1, 3 \right)$$

$$\boxed{x = \frac{-13}{3}, \quad x = -1}$$

$$236) \frac{I}{n} = p \text{ for } n \quad LCD = n$$

$$\left(\frac{n}{1}\right) \left(\frac{I}{n}\right) = \left(\frac{p}{1}\right) \left(\frac{n}{1}\right)$$

$$\frac{I}{p} = \frac{pn}{p}$$

$$\frac{I}{p} = n$$

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$$238) \frac{x+5}{2-y} = \frac{4}{3} \text{ for } y \quad LCD = 3(2-y)$$

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

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

$$(x+5)(3) = 4(2-y)$$

$$3x + 15 = 8 - 4y$$

$$+4y - 3x - 15 \quad -15 + 4y - 3x$$

$$\frac{4y}{4} = \frac{-3x - 7}{4}$$

$$y = \frac{-3}{4}x - \frac{7}{4}$$

$$240) m = \frac{n}{2-n} \text{ for } n$$

$$\frac{m}{1} = \frac{n}{(2-n)} \quad LCD = (2-n)$$

$$\left(\frac{(2-n)}{1}\right) \left(\frac{m}{1}\right) = \left(\frac{n}{(2-n)}\right) \left(\frac{(2-n)}{1}\right)$$

$$m(2-n) = n$$

$$2m - mn = n$$

$$+mn \quad +mn$$

$$2m = n + mn$$

$$\frac{2m}{1+m} = \frac{n(1+m)}{1+m}$$

$$\frac{2}{1+m} = n$$

$$248) \frac{R}{T} = W \text{ for } T \quad LCD = T$$

$$\left(\frac{T}{1}\right) \left(\frac{R}{T}\right) = \left(\frac{W}{1}\right) \left(\frac{T}{1}\right)$$

$$\frac{R}{W} = \frac{WT}{W}$$

$$\frac{R}{W} = T$$

$$242) \quad \frac{3}{s} + \frac{1}{t} = 2 \quad \text{for } s \quad \text{LCD} = st$$

$$\left(\frac{st}{1}\right) \left(\frac{3}{s} + \frac{1}{t}\right) = \left(\frac{2}{1}\right) \left(\frac{st}{1}\right)$$

$$3(st) + 1(st) = 2(st)$$

$$3st + st = 2st$$

$$\begin{array}{r} -st \qquad -st \\ \hline 3st = 2st - st \end{array}$$

$$3st = 2st - st$$

$$\frac{3st}{2st - st} = \frac{2st - st}{2st - st}$$

$$\frac{3st}{st} = 1$$

$$244) \quad \frac{6}{x} + \frac{2}{3} = \frac{1}{y} \quad \text{for } y \quad \text{LCD} = 3xy$$

$$\left(\frac{3xy}{1}\right) \left(\frac{6}{x} + \frac{2}{3}\right) = \left(\frac{1}{y}\right) \left(\frac{3xy}{1}\right)$$

$$6(3y) + 2(xy) = 1(3x)$$

$$18y + 2xy = 3x$$

$$18y + 2xy = 3x$$

$$\frac{y(18 + 2x)}{18 + 2x} = \frac{3x}{18 + 2x}$$

$$y = \frac{3x}{18 + 2x}$$

$$246) \quad n = \frac{1}{3-t} \quad \text{for } t \quad \text{LCD} = (3-t)$$

$$\left(\frac{(3-t)}{1}\right) \left(\frac{n}{1}\right) = \left(\frac{1}{(3-t)}\right) \left(\frac{(3-t)}{1}\right)$$

$$n(3-t) = 1$$

$$3n - nt = 1$$

$$\begin{array}{r} -1 \quad +nt \quad -1 + nt \\ \hline 3n - 1 = nt \end{array}$$

$$3n - 1 = nt$$

$$\frac{3n - 1}{n} = \frac{nt}{n}$$

$$\frac{3n - 1}{n} = t$$

$$250) \quad c = \frac{2}{a} + \frac{b}{5} \quad \text{for } a \quad \text{LCD} = 5a$$

$$\left(\frac{5a}{1}\right)\left(\frac{c}{1}\right) = \left(\frac{2}{a} + \frac{b}{5}\right)\left(\frac{5a}{1}\right)$$

$$c(5a) = 2(5) + b(a)$$

$$5ac = 10 + ab$$

$$\begin{array}{r} 5ac = 10 + ab \\ -ab \quad -ab \\ \hline \end{array}$$

$$5ac - ab = 10$$

$$5ac - ab = 10$$

$$\frac{a(5c - b) = 10}{5c - b \quad 5c - b}$$

$$a = \frac{10}{5c - b}$$