

DEVOIR - ALGEBRE - LES EQUATIONS DU PREMIER DEGRE - CORRECTION

Résous les équations :

$$\begin{aligned} 1. \quad (2x+5) - 3(-x-5) &= -2(3x+1) - 7 & S &= \{-29/11\} \\ 2x+5+3x+15 &= -6x-2-7 \\ 11x &= -29 \\ x &= -29/11 \end{aligned}$$

$$\begin{aligned} 2. \quad [3(2x+1) - 5x] + 5(2x-3) &= -7 + 6x & S &= \{1\} \\ 6x+3-5x+10x-15 &= -7+6x \\ 5x &= 5 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} 3. \quad (2x+1)(x-3) &= (x-5)(2x+3) & S &= \{-6\} \\ 2x^2-6x+x-3 &= 2x^2+3x-10x-15 \\ 2x &= -12 \\ x &= -6 \end{aligned}$$

$$\begin{aligned} 4. \quad (3x-1)(4x+1) - (2x+3)(6x-5) &= 6(x-1) & S &= \{4/3\} \\ 12x^2+3x-4x-1 - (12x^2-10x+18x-15) &= 6x-6 \\ 12x^2+3x-4x-1-12x^2+10x-18x+15 &= 6x-6 \\ -15x &= -20 \\ x &= 4/3 \end{aligned}$$

$$\begin{aligned} 5. \quad (2x-1)^2 &= (2x+3)(2x-5) & S &= \{ \} \\ 4x^2-4x+1 &= 4x^2-10x+6x-15 \\ 0x &= -16 \end{aligned}$$

$$\begin{aligned} 6. \quad (2x-5)(2x+5) - (2x-3)^2 &= 3(2x-1) & S &= \{31/6\} \\ 4x^2-25 - (4x^2-12x+9) &= 6x-3 \\ 4x^2-25-4x^2+12x-9 &= 6x-3 \\ 6x &= 31 \\ x &= 31/6 \end{aligned}$$

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

$$\frac{x-5}{2} + \frac{4x+10}{3} = 1$$

$$\begin{aligned} 7. \quad \frac{3x-15}{6} + \frac{8x+20}{6} &= \frac{6}{6} & S &= \{1/11\} \\ 3x-15+8x+20 &= 6 \\ 11x &= 1 \\ x &= \frac{1}{11} \end{aligned}$$

$$\frac{3x-1}{5} + \frac{2x+3}{2} = \frac{4}{15}$$

$$\frac{18x-6}{30} + \frac{30x+45}{30} = \frac{8}{30}$$

$$\begin{aligned} 8. \quad 18x-6+30x+45 &= 8 & S &= \{-31/48\} \\ 48x &= -31 \\ x &= \frac{-31}{48} \end{aligned}$$

$$\frac{3x-2}{2} - \frac{3-4x}{3} = \frac{-2x+1}{9}$$

$$\frac{27x-18}{18} - \frac{18-24x}{18} = \frac{-4x+2}{18}$$

9. $27x - 18 - 18 + 24x = -4x + 2$

$$55x = 38$$

$$x = \frac{38}{55}$$

$$S = \{ 38/55 \}$$

$$\frac{-2\left(\frac{3x+1}{5}\right) - \frac{-2(-2+x)}{5}}{3} = \frac{4x+1}{6}$$

$$\frac{-6x-2}{15} - \frac{4-2x}{10} = \frac{4x+1}{6}$$

10. $\frac{-12x-4}{30} - \frac{12-6x}{30} = \frac{20x+5}{30}$

$$-12x - 4 - 12 + 6x = 20x + 5$$

$$-26x = 21$$

$$x = \frac{-21}{26}$$

$$S = \{-21/26\}$$

$$\frac{2}{3x+1} = \frac{-5}{2x-7}$$

$$2(2x-7) = -5(3x+1)$$

11. $4x - 14 = -15x - 5$

$$19x = 9$$

$$x = \frac{9}{19}$$

$$S = \{ 9/19 \}$$

C.E. : $x \neq -1/3$ $x \neq 7/2$

$$\frac{2x}{x-2} = \frac{6x}{3x+1}$$

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

12. $6x^2 + 2x = 6x^2 - 12x$

$$-14x = 0$$

$$x = 0$$

$$S = \{ 0 \}$$

C.E. : $x \neq 2$ $x \neq -1/3$

$$\frac{2x-1}{5x+3} = \frac{4x-3}{10x-4}$$

$$(2x-1)(10x-4) = (4x-3)(5x+3)$$

13. $20x^2 - 8x - 10x + 4 = 20x^2 + 12x - 15x - 9$

$$-15x = -13$$

$$x = \frac{13}{15}$$

$$S = \{ 13/15 \}$$

C.E. : $x \neq -3/5$ $x \neq 2/5$
