Resuelve paso a paso cada una de las siguientes ecuaciones:

a) $5x + 11 = 15x - 19$

b) $7x - 9 = 3 + 9x - 10$

c) $6x - 4 + 3x - 9 + 3x = x - 6 - 3x + 1 + 7$

d) $x - 3 \cdot (x - 2) = 6x - 2$

e) $2(3x + 2) = 4\left[2x - 5(x - 2)\right]$

f) $x - 3(x + 5) = 3x + 10$

g) $2(1 + x) - 3(x - 1) - 6 = x - 11$

h) $3x + \dfrac{1}{2}x + 6 = 2x$

i) $\dfrac{5x + 7}{2} - \dfrac{3x + 9}{4} = \dfrac{2x + 5}{3} + 5$

j) $\dfrac{x}{2} + \dfrac{2x}{3} - \dfrac{5x}{6} = 5x - 14$

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a) $5x - 11 = 15x - 19$ $\rightarrow$ $5x - 15x = 11 - 19$ $\rightarrow$ $-10x = -8$ $\rightarrow$ $x = \dfrac{-8}{-10} = \dfrac{4}{5}$ $\rightarrow$ $x = \dfrac{4}{5}$

b) $10x - 15 = 4x + 27$ $\rightarrow$ $10x - 4x = 27 + 15$ $\rightarrow$ $6x = 42$ $\rightarrow$ $x = \dfrac{42}{6} = 7$ $\rightarrow$ $x = 7$

c) $6x - 9 + 3x - 2 - 5x = x - 6 - 3x + 1$ $\rightarrow$ $6x + 3x - 5x - x + 3x = 9 + 2 - 6 + 1$ $\rightarrow$

$\rightarrow$ $6x = 6$ $\rightarrow$ $x = \dfrac{6}{6} = 1$ $\rightarrow$ $x = 1$

d) $x - 3\cdot(x - 2) = 6x - 2$ $\rightarrow$ $x - 3x + 6 = 6x - 2$ $\rightarrow$ $x - 3x - 6x = -2 - 6$ $\rightarrow$

$\rightarrow$ $-8x = -8$ $\rightarrow$ $x = \dfrac{-8}{-8} = 1$ $\rightarrow$ $x = 1$

e) $3[10 - x] = 2(8 - x) + 13x$ $\rightarrow$ $30 - 3x = 16 - 2x + 13x$ $\rightarrow$ $-3x + 2x - 13x = 16 - 30$ $\rightarrow$

$\rightarrow$ $-14x = -14$ $\rightarrow$ $x = \dfrac{-14}{-14} = 1$ $\rightarrow$ $x = 1$

f) $3\left[2x - (3x + 1)\right] = x + 1$ $\rightarrow$ $3\cdot(2x - 3x - 1) = x + 1$ $\rightarrow$ $3\cdot(-x - 1) = x + 1$ $\rightarrow$

$\rightarrow$ $-3x - 3 = x + 1$ $\rightarrow$ $-3x - x = 1 + 4$ $\rightarrow$ $-4x = 4$ $\rightarrow$ $x = \dfrac{4}{-4} = -1$ $\rightarrow$ $x = -1$

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

$\rightarrow$ $9x = 12$ $\rightarrow$ $x = \dfrac{12}{9} = \dfrac{4}{3}$ $\rightarrow$ $x = \dfrac{4}{3}$

h) $\dfrac{3x}{2} + 2 = x + 4$ $\rightarrow$ $\dfrac{3x}{2} + \dfrac{4}{2} = \dfrac{2x}{2} + \dfrac{8}{2}$ $\rightarrow$ $3x + 4 = 2x + 8$ $\rightarrow$ $3x - 2x = 8 - 4$ $\rightarrow$ $x = 4$

i) $\dfrac{x - 4}{6} + \dfrac{2x - 4}{8} = \dfrac{5x}{10} - \dfrac{5x - 6}{12}$ $\rightarrow$ $\dfrac{x - 4}{6} + \dfrac{x - 2}{4} = \dfrac{x}{2} - \dfrac{5x - 6}{12}$ $\rightarrow$

$\rightarrow$ $\dfrac{2(x - 4)}{12} + \dfrac{3(x - 2)}{12} = \dfrac{6x}{12} - \dfrac{5x - 6}{12}$ $\rightarrow$ $2(x - 4) + 3(x - 2) = 6x - 5x + 6$ $\rightarrow$

$\rightarrow$ $2x - 8 + 3x - 6 = 6x - 5x + 6$ $\rightarrow$ $2x + 3x - 6x + 5x = 6 + 6 + 8$ $\rightarrow$ $5x = 20$ $\rightarrow$

$\rightarrow$ $x = \dfrac{20}{5} = 4$ $\rightarrow$ $x = 4$

j) $\dfrac{5x}{8} - 5(x - 20) = \dfrac{18 - 2x}{6}$ $\rightarrow$ $\dfrac{15x}{24} - \dfrac{24\cdot5(x - 20)}{24} = \dfrac{4\cdot(18 - 2x)}{24}$

$\rightarrow$ $15x - 120(x - 20) = 72 - 8x$ $\rightarrow$ $15x - 120x + 2400 = 72 - 8x$

$\rightarrow$ $15x - 120x + 8x = 72 - 2400$ $\rightarrow$ $-97x = -2328$ $\rightarrow$ $x = \dfrac{-2328}{-97} = 24$ $\rightarrow$ $x = 24$