Ecuaciones 3

① $1-2(2x-1)=5x-(5-3x)$

$1-4x+2=5x-5+3x$

$-4x-5x-3x=-1-2-5$

$-12x=-8$

$12x=8$

$x=\frac{8}{12}$ $\boxed{x=\frac{2}{3}}$

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② $4(5x-3)-7x=3(6x-4)+10$

$20x-12-7x=18x-12+10$

$20x-7x-18x=12-12+10$

$-5x=10$

$5x=-10$

$x=\frac{-10}{5}$ $\boxed{x=-2}$

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③ $16x-7(x+1)=2-9(1-x)$

$16x-7x-7=2-9+9x$

$16x-7x-9x=2-9+7$

$0x=0$

$0=0 \rightarrow$ Infinitas soluciones

Ecuaciones 3

④ $13x-15-6x=1-(7x+9)$

$13x-15-6x=1-7x-9$

$13x-6x+7x=1-9+15$

$14x=7$

$x=\frac{7}{14}$ $\boxed{x=\frac{1}{2}}$

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⑤ $2(3x-1)-5x=5-(3x+11)$

$6x-2-5x=5-3x-11$

$6x-5x+3x=2+5-11$

$4x=-4$

$x=\frac{-4}{4}$ $\boxed{x=-1}$

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⑥ $7-(2x+9)=11x-5(1-x)$

$7-2x-9=11x-5+5x$

$-2x-11x-5x=-7+9-5$

$-18x=-3$

$18x=3$

$x=\frac{3}{18}$ $\boxed{x=\frac{1}{6}}$

Ecuaciones 4

① $\frac{3x}{2} - \frac{x}{4} = 1$

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

$6x - x = 4$

$5x = 4$

$\boxed{x = \frac{4}{5}}$

② $\frac{7x}{10} + 1 = \frac{2}{5} + x$

$\frac{7x}{10} + \frac{10}{10} = \frac{4}{10} + \frac{10x}{10}$

$7x + 10 = 4 + 10x$

$7x - 10x = 4 - 6$

$-3x = -6$

$3x = 6$

$x = \frac{6}{3}$ $\boxed{x = 2}$

③ $\frac{11x}{20} - x = \frac{3x}{4} - 1$

$\frac{11x}{20} - \frac{20x}{20} = \frac{15x}{20} - \frac{20}{20}$

$11x - 20x = 15x - 20$

$11x - 20x - 15x = -20$

$-24x = -20$

$24x = 20$

$x = \frac{20}{24}$; $\boxed{x = \frac{5}{6}}$

Ecuaciones 4

④ $\frac{3x-1}{2} - 1 = 2x - 2$

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

$3x - 1 - 2 = 4x - 4$

$3x - 4x = -4 + 1 + 2$

$-1x = -1$

$1x = 1$

$\boxed{x = 1}$

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

$\frac{8x}{4} + \frac{2x-6}{4} = \frac{x-3}{4}$

$8x + 2x - 6 = x - 3$

$8x + 2x - x = -3 + 6$

$9x = 3$

$x = \frac{3}{9}$

$\boxed{x = \frac{1}{3}}$

Ecuaciones 4

⑥ $\frac{x+3}{5} - \frac{x-6}{7} = 1$

$\frac{7x+21}{35} - \frac{5x-30}{35} = \frac{35}{35}$

$7x + 21 - 5x + 30 = 35$

$7x - 5x = 35 - 21 - 30$

$2x = -16$

$\boxed{x = -8}$

Ecuaciones 5

a)

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

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

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

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

$$4+10x=5x-1$$

$$10x-5x=-1-4$$

$$5x=-5$$

$$x=\frac{-5}{5}$$

$$x=-1$$

b)

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

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

$$\frac{6x}{3}-\frac{18}{3}-\frac{1}{3}=\frac{3x}{3}-\frac{x}{3}+\frac{1}{3}$$

$$\frac{6x-18-1}{3}=\frac{3x-x+1}{3}$$

$$6x-18-1=3x-x+1$$

$$6x-3x+x=1+1+18$$

$$4x=20$$

$$x=\frac{20}{4}$$

$$x=5$$

c)

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

$$1-\frac{3x}{8}=\frac{3}{4}-\frac{x}{2}+\frac{2}{2}$$

$$\frac{8}{8}-\frac{3x}{8}=\frac{6}{8}-\frac{4x}{8}+\frac{8}{8}$$

$$\frac{8-3x}{8}=\frac{6-4x+8}{8}$$

$$8-3x=6-4x+8$$

$$-3x+4x=14-8$$

$$x=6$$

d)

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

$$x-\frac{3x}{4}=\frac{2x}{3}-\frac{1}{3}+\frac{x}{6}$$

$$\frac{12x}{12}-\frac{9x}{12}=\frac{8x}{12}-\frac{4}{12}+\frac{2x}{12}$$

$$\frac{12x-9x}{12}=\frac{8x-4+2x}{12}$$

$$12x-9x=8x-4+2x$$

$$3x-8x-2x=-4$$

$$-7x=-4$$

$$x=\frac{4}{7}$$

Ecuaciones 5

d)

$$\frac{2}{3}(1-3x)+\frac{3(x-1)}{4}=\frac{5}{12}(1-x)$$

$$\frac{2}{3}-\frac{6x}{3}+\frac{3x-3}{4}=\frac{5}{12}-\frac{5x}{12}$$

$$\frac{8}{12}-\frac{24x}{12}+\frac{9x-9}{12}=\frac{5}{12}-\frac{5x}{12}$$

$$\frac{8-24x+9x-9}{12}=\frac{5-5x}{12}$$

$$8-24x+9x-9=5-5x$$

$$-15x+5x=5-8+9$$

$$-10x=6$$

$$x=\frac{6}{-10}$$

$$x=-\frac{3}{5}$$

e)

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

$$\frac{3x-3}{15}+\frac{3}{5}+x=\frac{3x}{4}-\frac{6}{12}$$

$$\frac{12x-12}{60}+\frac{36}{60}+\frac{60x}{60}=\frac{45x}{60}-\frac{30}{60}$$

$$\frac{12x-12+36+60x}{60}=\frac{45x-30}{60}$$

$$12x-12+36+60x=45x-30$$

$$72x-45x=-30+12-36$$

$$27x=-54$$

$$x=\frac{-54}{27}$$

$$x=-2$$