Ecuaciones de primer grado con denominador.

a) $\dfrac{x}{3}+\dfrac{x}{6}-\dfrac{x}{9}=7$

b) $\dfrac{x-3}{2}+\dfrac{2x-5}{2}=5$

c) $\dfrac{7x-1}{2}-\dfrac{4x-6}{2}=7$

d) $\dfrac{5x-1}{4}-\dfrac{3x+8}{6}=\dfrac{17}{12}$

e) $\dfrac{x+1}{4}-\dfrac{x-2}{6}+\dfrac{3x-3}{5}=\dfrac{34}{10}$

f) $\dfrac{x-2}{3}-\dfrac{5x-4}{6}=\dfrac{-45x}{90}$

a) $\dfrac{x}{3}+\dfrac{x}{6}-\dfrac{x}{9}=7\Rightarrow\dfrac{6x}{18}+\dfrac{3x}{18}-\dfrac{2x}{18}=\dfrac{126}{18}\Rightarrow 7x=126\Rightarrow x=\dfrac{126}{7}=18$

b) $\dfrac{x-3}{2}+\dfrac{2x-5}{2}=5\Rightarrow x-3+2x-5=10\Rightarrow 3x=18\Rightarrow x=6$

c) $\dfrac{7x-1}{2}-\dfrac{4x-6}{2}=7\Rightarrow 7x-1-(4x-6)=14\Rightarrow 3x=9\Rightarrow x=3$

d) $\dfrac{5x-1}{4}-\dfrac{3x+8}{6}=\dfrac{17}{12}\Rightarrow\dfrac{15x-3}{12}-\dfrac{6x+16}{12}=\dfrac{17}{12}\Rightarrow 15x-3-(6x+16)=17\Rightarrow 9x=36\Rightarrow x=4$

e) $\dfrac{x+1}{4}-\dfrac{x-2}{6}+\dfrac{3x-3}{5}=\dfrac{34}{10}\Rightarrow\dfrac{15x+15}{60}-\dfrac{10x-20}{60}+\dfrac{36x-36}{60}=\dfrac{204}{60}\Rightarrow$

$\Rightarrow 15x+15-(10x-20)+36x-36=204\Rightarrow 41x=205\Rightarrow x=5$

f) $\dfrac{x-2}{3}-\dfrac{5x-4}{6}=\dfrac{-45x}{90}\Rightarrow\dfrac{30x-60}{90}-\dfrac{75x-60}{90}=\dfrac{-45x}{90}\Rightarrow 30x-60-(75x-60)=-45x\Rightarrow x=0$

Ecuaciones de primer grado con denominador.

a) $3x-\dfrac{1}{4}=2x+\dfrac{1}{3}-\dfrac{5}{6}$

b) $\dfrac{2x-3}{5}+1=4x+4$

c) $\dfrac{3x-1}{2}+\dfrac{5x+7}{2}=-1$

d) $\dfrac{5x+7}{4}-\dfrac{2x+1}{3}=2$

e) $\dfrac{6-x}{5}+\dfrac{3x-1}{6}-\dfrac{2x+3}{4}=\dfrac{1}{12}$

f) $x-2-\dfrac{5x+7}{6}=\dfrac{10-4x}{9}$

g) $\dfrac{9x-1}{12}+\dfrac{6x+6}{8}-\dfrac{3x}{10}=\dfrac{16}{15}$

a) $3x-2x=\dfrac{1}{3}-\dfrac{5}{6}+\dfrac{1}{4}\rightarrow x=\dfrac{1}{3}-\dfrac{5}{6}+\dfrac{1}{4}=\dfrac{4-10+3}{12}=\dfrac{-3}{12}=\dfrac{-1}{4}$

b) $\dfrac{2x-3}{5}+1=4x+4\rightarrow\dfrac{2x-3}{5}=4x+3\rightarrow 2x-3=20x+15\rightarrow x=-1$

c) $\dfrac{3x-1}{2}+\dfrac{5x+7}{2}=-1\rightarrow 3x-1+5x+7=-2\rightarrow 8x=-8\rightarrow x=-1$

d) $\dfrac{5x+7}{4}-\dfrac{2x+1}{3}=2\rightarrow\dfrac{15x+21}{12}-\dfrac{8x+4}{12}=\dfrac{24}{12}\rightarrow 15x+21-(8x+4)=24\rightarrow 7x=7\rightarrow x=1$

e) $\left(\dfrac{6-x}{5}+\dfrac{3x-1}{6}-\dfrac{2x+3}{4}\right)60=\dfrac{1}{12}60\rightarrow 72-12x+30x-10-30x-45=5\rightarrow x=\dfrac{-12}{-12}=1$

f) $x-2-\dfrac{5x+7}{6}=\dfrac{10-4x}{9}\rightarrow\dfrac{18x-36}{18}-\dfrac{15x+21}{18}=\dfrac{20-8x}{18}\rightarrow 18x-15x+8x=20+36+21\rightarrow x=\dfrac{77}{11}=7$

g) $\dfrac{9x-1}{12}+\dfrac{6x+6}{8}-\dfrac{3x}{10}=\dfrac{16}{15}\rightarrow\dfrac{90x-10+90x+90-36x}{120}=\dfrac{128}{120}\rightarrow 144x=48\rightarrow x=\dfrac{48}{144}=\dfrac{1}{3}$

Ecuaciones de primer grado con paréntesis y/o denominador.

a) $\dfrac{2(3x+7)}{5}+\dfrac{5(x-3)}{2}=-1$ 　　　b) $\dfrac{3(4x+1)}{7}-\dfrac{6(x-3)}{5}=3$ 　　　c) $3(2x-4)+\dfrac{5x+1}{6}=\dfrac{1}{4}$

a) $\dfrac{2(3x+7)}{5}+\dfrac{5(x-3)}{2}=-1 \Rightarrow \dfrac{6x+14}{5}+\dfrac{5x-15}{2}=-1 \Rightarrow \dfrac{12x+28}{10}+\dfrac{25x-75}{10}=\dfrac{-10}{10} \Rightarrow 37x=37 \Rightarrow x=1$

b) $\dfrac{3(4x+1)}{7}-\dfrac{6(x-3)}{5}=3 \Rightarrow \dfrac{12x+3}{7}-\dfrac{6x-18}{5}=3 \Rightarrow 5(12x+3)-7(6x-18)=3\cdot5\cdot7 \Rightarrow 18x=-36 \Rightarrow x=-2$

c) $3(2x-4)+\dfrac{5x+1}{6}=\dfrac{1}{4} \Rightarrow 6x-12+\dfrac{5x+1}{6}=\dfrac{1}{4} \Rightarrow \dfrac{72x-144}{12}+\dfrac{10x+2}{12}=\dfrac{3}{12} \Rightarrow 82x=145 \Rightarrow x=\dfrac{145}{82}$