方程式の計算（分数②）

例題　次の方程式を解け。

(1)　$\frac{5x+7}{2}+\frac{2x+5}{3}=2$

答

(2)　$x+2-\frac{x+5}{3}=\frac{3}{4}$

答

練習A　次の方程式を解け。

(1)　$\frac{2x-3}{5}-\frac{9x-7}{4}=3$

答

(2)　$\frac{12-x}{3}=\frac{3x+3}{4}$

答

(3)　$\frac{3x-4}{8}=\frac{5x-14}{6}$

答

(4)　$\frac{x-6}{2}=\frac{4x-14}{3}$

答

練習B 次の方程式を解け。

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

答

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

答

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

答

(4) $\frac{1-2x}{4}-\frac{4x+14}{3}=\frac{1}{6}$

答

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

答

(6) $\frac{3x-6}{4}-\frac{2x+5}{8}=\frac{1}{2}$

答

方程式の計算（分数②）

例題　次の方程式を解け。

(1)　$\frac{5x+7}{2}+\frac{2x+5}{3}=2$

★

$\frac{{}^{3}\cancel{6}(5x+7)}{\cancel{2}_{1}}+\frac{{}^{2}\cancel{6}(2x+5)}{\cancel{3}_{1}}=2\times 6$

$3(5x+7)+2(2x+5)=12$

$15x+21+4x+10=12$

$15x+4x=12-21-10$

$19x=-19$

$\frac{{}^{1}\cancel{19}x}{\cancel{19}_{1}}=\frac{-{}^{1}\cancel{19}}{\cancel{19}_{1}}$

$x=-1$

答　$x=-1$

(2)　$x+2-\frac{x+5}{3}=\frac{3}{4}$

★

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

$12x+24-4(x+5)=9$

$12x+24-4x-20=9$

$12x-4x=9-24+20$

$8x=5$

$\frac{{}^{1}\cancel{8}x}{\cancel{8}_{1}}=\frac{5}{8}$

$x=\frac{5}{8}$

答　$x=\frac{5}{8}$

練習A　次の方程式を解け。

(1)　$\frac{2x-3}{5}-\frac{9x-7}{4}=3$

★

$\frac{{}^{4}\cancel{20}(2x-3)}{\cancel{5}_{1}}-\frac{{}^{5}\cancel{20}(9x-7)}{\cancel{4}_{1}}=3\times 20$

$4(2x-3)-5(9x-7)=60$

$8x-12-45x+35=60$

$8x-45x=60+12-35$

$-37x=37$

$\frac{-{}^{1}\cancel{37}x}{-\cancel{37}_{1}}=\frac{{}^{1}\cancel{37}}{-\cancel{37}_{1}}$

$x=-1$

答　$x=-1$

(2)　$\frac{12-x}{3}=\frac{3x+3}{4}$

★

$\frac{{}^{4}\cancel{12}(12-x)}{\cancel{3}_{1}}=\frac{{}^{3}\cancel{12}(3x+3)}{\cancel{4}_{1}}$

$4(12-x)=3(3x+3)$

$48-4x=9x+9$

$-4x-9x=9-48$

$-13x=-39$

$\frac{-{}^{1}\cancel{13}x}{-\cancel{13}_{1}}=\frac{-{}^{3}\cancel{39}}{-\cancel{13}_{1}}$

$x=3$

答　$x=3$

(3)　$\frac{3x-4}{8}=\frac{5x-14}{6}$

★

$\frac{{}^{3}\cancel{24}(3x-4)}{\cancel{8}_{1}}=\frac{{}^{4}\cancel{24}(5x-14)}{\cancel{6}_{1}}$

$3(3x-4)=4(5x-14)$

$9x-12=20x-56$

$9x-20x=-56+12$

$-11x=-44$

$\frac{-{}^{1}\cancel{11}x}{-\cancel{11}_{1}}=\frac{-{}^{4}\cancel{44}}{-\cancel{11}_{1}}$

$x=4$

答　$x=4$

(4)　$\frac{x-6}{2}=\frac{4x-14}{3}$

★

$\frac{{}^{3}\cancel{6}(x-6)}{\cancel{2}_{1}}=\frac{{}^{2}\cancel{6}(4x-14)}{\cancel{3}_{1}}$

$3(x-6)=2(4x-14)$

$3x-18=8x-28$

$3x-8x=-28+18$

$-5x=-10$

$\frac{-{}^{1}\cancel{5}x}{-\cancel{5}_{1}}=\frac{-{}^{2}\cancel{10}}{-\cancel{5}_{1}}$

$x=2$

答　$x=2$

練習B　次の方程式を解け。

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

★

$\frac{{}^{5}\cancel{15}(2x+5)}{\cancel{3}_{1}}+\frac{{}^{3}\cancel{15}(-4x+2)}{\cancel{5}_{1}}=1\times 15$

$5(2x+5)+3(-4x+2)=15$

$10x+25-12x+6=15$

$10x-12x=15-25-6$

$-2x=-16$

$\frac{-{}^{1}\cancel{2}x}{-\cancel{2}_{1}}=\frac{-{}^{8}\cancel{16}}{-\cancel{2}_{1}}$

$x=8$

答　$x=8$

(2)　$\frac{2x-3}{4}+\frac{3x+2}{2}=2$

★

$\frac{{}^{1}\cancel{4}(2x-3)}{\cancel{4}_{1}}+\frac{{}^{2}\cancel{4}(3x+2)}{\cancel{2}_{1}}=2\times 4$

$(2x-3)+2(3x+2)=8$

$2x-3+6x+4=8$

$2x+6x=8+3-4$

$8x=7$

$\frac{{}^{1}\cancel{8}x}{\cancel{8}_{1}}=\frac{7}{8}$

$x=\frac{7}{8}$

答　$x=\frac{7}{8}$

(3)　$x+1+\frac{x+3}{4}=\frac{1}{2}$

★

$4x+1\times 4+\frac{{}^{1}\cancel{4}(x+3)}{\cancel{4}_{1}}=\frac{1}{\cancel{2}_{1}}\times \cancel{4}^{2}$

$4x+4+(x+3)=2$

$4x+4+x+3=2$

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

$5x=-5$

$\frac{{}^{1}\cancel{5}x}{\cancel{5}_{1}}=\frac{-{}^{1}\cancel{5}}{\cancel{5}_{1}}$

$x=-1$

答　$x=-1$

(4)　$\frac{1-2x}{4}-\frac{4x+14}{3}=\frac{1}{6}$

★

$\frac{{}^{3}\cancel{12}(1-2x)}{\cancel{4}_{1}}-\frac{{}^{4}\cancel{12}(4x+14)}{\cancel{3}_{1}}=\frac{1}{\cancel{6}_{1}}\times \cancel{12}^{2}$

$3(1-2x)-4(4x+14)=2$

$3-6x-16x-56=2$

$-6x-16x=2-3+56$

$-22x=55$

$\frac{-{}^{1}\cancel{22}x}{-\cancel{22}_{1}}=\frac{{}^{5}\cancel{55}}{-\cancel{22}_{2}}$

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

答　$x=-\frac{5}{2}$

(5)　$x-2-\frac{x+2}{2}=\frac{1}{3}$

★

$6x-2\times 6-\frac{{}^{3}\cancel{6}(x-5)}{\cancel{2}_{1}}=\frac{1}{\cancel{3}_{1}}\times \cancel{6}^{2}$

$6x-12-3(x-5)=2$

$6x-12-3x+15=2$

$6x-3x=2+12-15$

$3x=-1$

$\frac{{}^{1}\cancel{3}x}{\cancel{3}_{1}}=\frac{-1}{3}$

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

答　$x=-\frac{1}{3}$

(6)　$\frac{3x-6}{4}-\frac{2x+5}{8}=\frac{1}{2}$

★

$\frac{{}^{2}\cancel{8}(3x-6)}{\cancel{4}_{1}}-\frac{{}^{1}\cancel{8}(2x+5)}{\cancel{8}_{1}}=\frac{1}{\cancel{2}_{1}}\times \cancel{8}^{4}$

$2(3x-6)-(2x+5)=4$

$6x-12-2x-5=4$

$6x-2x=4+12+5$

$4x=21$

$\frac{{}^{1}\cancel{4}x}{\cancel{4}_{1}}=\frac{21}{4}$

$x=\frac{21}{4}$

答　$x=\frac{21}{4}$