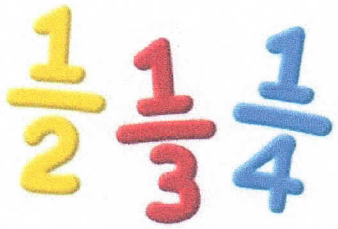
Solving Equations with Fractions (Part B)

Date _____

Steps to Solve:

1. Find the least common multiple of the denominators.
2. Multiply each term in the equation by the least common multiple.
3. Cross cancel the denominators to remove the fractions.
4. Remove brackets (if necessary) and collect like terms.
5. Solve for the variable.



Examples

a) $\frac{x+3}{8}+\frac{x+1}{3}=3$ LCD=24

$24\left(\frac{x+3}{8}\right)+24\left(\frac{x+1}{3}\right)=(24)(3)$

$3(x+3)+8(x+1)=72$

$3x+9+8x+8=72$

$11x=72-9-8$

$\frac{11x}{11}=\frac{55}{11}$

$x=5$

b) $\frac{3(y-5)}{4}=\frac{7}{3}-\frac{1}{12}$ LCD=12

$\frac{3(12)(3)(y-5)}{4}=(12)\left(\frac{7}{3}\right)-(12)\left(\frac{1}{12}\right)$

$(3)(3)(y-5)=(4)(7)-1$

$9(y-5)=28-1$

$9y-45=28-1$

$9y=28-1+45$

$\frac{9y}{9}=\frac{72}{9}$

$y=8$

c) $\frac{2}{5}+\frac{4x}{3}=\frac{10x}{6}+\frac{11}{15}$ LCD=30

$30\left(\frac{2}{5}\right)+30\left(\frac{4x}{3}\right)=30\left(\frac{10x}{6}\right)+30\left(\frac{11}{15}\right)$

$6(2)+10(4x)=5(10x)+2(11)$.

$12+40x=50x+22$

$12-22=50x-40x$

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

$-1=x$

d) $\frac{-2(k-9)}{5}=\frac{-3(k+1)}{2}-\frac{2}{5}$ LCD=10

$\frac{10(-2)(k-9)}{5}=\frac{10(-3)(k+1)}{2}-\frac{10(2)}{5}$

$2(-2)(k-9)=5(-3)(k+1)-(2)(2)$.

$-4(k-9)=-15(k+1)-4$

$-4k+36=-15k-15-4$

$-4k+15k=-15-4-36$

$\frac{11k}{11}=\frac{-55}{11}$

$k=-5$