Proficiency Check 3.3a – Brackets, Fractions, and Decimals

Show all of your steps. The manipulation is what matters, not the solution.

Emerging	Emerging
1. $3(x-2)+7=2(x+5)$ $3x-6+7=2x+10$ $3x+1=2x+10$ $-2x \quad -2x$ $x+1=10$ $-1 \quad -1$ $\boxed{x=9}$	2. $-(t-5)+4(t+1)=2(t-5)$ $-t+5+4t+4=2t-10$ $3t+9=2t-10$ $-2t \quad -2t$ $t+9=-10$ $-9 \quad -9$ $\boxed{t=-19}$
3. $-(4+2r)-3(r+6)=5(r+3)$ $-4-2r-3r-18=5r+15$ $-22-5r=5r+15$ $+22 \quad +22$ $-5r=5r+37$ $-5r \quad -5r$ $-10r=37$ $-10 \quad -10$ $\boxed{r=-\frac{37}{10}}$	4. $2(k+7)-4k=-(2+k)-7$ $2k+14-4k=-2-k-7$ $-2k+14=-k-9$ $+k \quad +k$ $-k+14=-9$ $-14 \quad -14$ $-k=-23$ $-1 \quad -1$ $\boxed{k=23}$
5. $0.3r+0.05=0.18-0.2r$ (100) $30r+5=18-20r$ $+20r \quad +20r$ $50r+5=18$ $-5 \quad -5$ $\frac{50r}{50}=\frac{13}{50}$ $\boxed{r=13/50}$	6. $0.04t+0.02-0.12t=0.02+0.05t$ (100) $4t+2-12t=2+5t$ $-8t+2=2+5t$ $-5t \quad -5t$ $-13t+2=2$ $-2 \quad -2$ $\frac{-13t}{-13}=\frac{0}{-13}$ $\boxed{t=0}$

Proficient	Proficient
7. $12 \cdot \frac{1}{2}x + \frac{3}{4} = \frac{5}{6} \cdot 12$ $6x + 9 = 10$ $-9 \quad -9$ $\frac{6x}{6} = \frac{1}{6}$ $\boxed{x = \frac{1}{6}}$	8. $6 \cdot \frac{5}{2}x - \frac{1}{6} = \frac{2}{3}x + 1 \cdot 6$ $15x - 1 = 4x + 6$ $-4x \quad -4x$ $11x - 1 = 6$ $+1 \quad +1$ $\frac{11x}{11} = \frac{7}{11}$ $\boxed{x = \frac{7}{11}}$
9. $10 \cdot -\frac{4}{5}x + \frac{1}{2} = \frac{3}{10} \cdot 10$ $-8x + 5 = 3$ $-5 \quad -5$ $-8x = -2$ $x = \frac{-2}{-8}$ $\boxed{x = \frac{1}{4}}$	10. $18 \cdot -\frac{1}{2}x - \frac{4}{9} = \frac{2}{3}x - \frac{5}{6} \cdot 18$ $-9x - 8 = 12x - 15$ $-12x \quad -12x$ $-21x - 8 = -15$ $+8 \quad +8$ $-21x = -7$ $\boxed{x = \frac{1}{3}}$

Extending

11. $12 \cdot \frac{1}{2}(x-4) + 12 \cdot \frac{3}{4}(x+2) = 12 \cdot -\frac{2}{3}(x+1) + 12 \cdot \frac{5}{6}(3-x)$

$6(x-4) + 9(x+2) = -8(x+1) + 10(3-x)$

$6x - 24 + 9x + 18 = -8x - 8 + 30 - 10x$

$15x - 6 = -18x + 22$

$+18x \qquad +18x$

$33x - 6 = 22$

$+6 \qquad +6$

$\frac{33x}{33} = \frac{28}{33}$

$\boxed{x = 28/33}$

12. $10 \cdot -\frac{1}{2}(-x+3) - 10 \cdot \frac{1}{5}(x+4) = 10 \cdot \frac{7}{10}(x-5) - 1 \cdot 10$

$-5(-x+3) - 2(x+4) = 7(x-5) - 10$

$5x - 15 - 2x - 8 = 7x - 35 - 10$

$3x - 23 = 7x - 45$

$+23 \qquad +23$

$3x = 7x - 22$

$-7x \qquad -7x$

$-4x = -22$

$x = \frac{-22}{-4} = \frac{11}{2}$

$\boxed{x = \frac{11}{2}}$