To clear fractions: ① Find common denominator of all fractions.
② Multiply EVERY term in the equation by the common denominator.

Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 3D.1 – Solving Special Equations

#1-5, Solve each equation.

1. $\frac{x}{2} + \frac{5x}{6} = \frac{1}{9}$ $\cdot 18$ $\cdot 18$ $\cdot 18$

$9x + 15x = 2$

$24x = 2$

$x = \frac{2}{24} \longrightarrow \boxed{x = \frac{1}{12}}$

2. $\frac{n-2}{5} + \frac{n}{3} = \frac{n}{2} + 1$ $\cdot 30$ $\cdot 30$ $\cdot 30$ $\cdot 30$

$6(n-2) + 10n = 15n + 30$

$6n - 12 + 10n = 15n + 30$

$16n - 12 = 15n + 30$

$-15n \quad -15n$

$n - 12 = 30$

$\boxed{n = 42}$

3. $2y - 4 = 2(y - 2)$

$2y - 4 = 2y - 4$

$-2y \quad -2y$

$-4 = -4$

Variables have cancelled and remaining equation is TRUE.

All real numbers are solutions.

4. $-4 + 5(z + 1) = 2z + 3(z + 1)$

$-4 + 5z + 5 = 2z + 3z + 3$

$5z + 1 = 5z + 3$

$-5z \quad -5z$

$1 = 3$

Variables have cancelled and remaining equation is FALSE.

This equation has no solution.

5. $\frac{4m}{7} - 3(m - 2) + \frac{m}{2} = \frac{5m}{4} - \frac{m}{7} + 1$ It is easier to get rid of grouping BEFORE clearing fractions.

$\frac{4m}{7} \cdot 28 - 3m \cdot 28 + 6 \cdot 28 + \frac{m}{2} \cdot 28 = \frac{5m}{4} \cdot 28 - \frac{m}{7} \cdot 28 + 1 \cdot 28$

$16m - 84m + 168 + 14m = 35m - 4m + 28$

$-54m + 168 = 31m + 28$

$-31m \quad -31m$

$-85m + 168 = 28$

$-85m = -140 \longrightarrow m = \frac{-140}{-85} \longrightarrow \boxed{m = \frac{28}{17}}$