Notes:

M9

Solving Equation with Fractions

3.6 Part 1

Distributive Property with Fractions:

$2\left(5+\frac{x}{4}\right)$ $= 10 + \frac{2x}{4}$ $= 10 + \frac{x}{2}$	$-\left(\frac{x}{7}-3\right)$ $= \frac{-x}{7} + 3$
$6\left(9x+\frac{2}{5}\right)$ $= 54x + \frac{12}{5}$	$-4\left(3y+\frac{9}{11}\right)$ $= -12y - \frac{36}{11}$

Removing Fractions from Equations

1. Equations with one fraction or with fractions that all have the same denominator.
   - Put each side in brackets.
   - Multiply each side by the denominator.
   - Reduce and multiply.
   - Solve

Examples: **Remove fractions. Do not solve.**

$2x + \frac{1}{4} = 5$ $8x + \frac{4}{4} = 20$ $8x + 1 = 20$	$6x - \frac{3}{10} = \frac{13}{10}$ $60x - 3 = 13$
$6x + 5 = \frac{4}{7}$ $42x + 35 = 4$	$\frac{2x}{3} - 9 = -\frac{8}{3}$ $2x - 27 = -8$

Examples: Solve Equations. Start with removing fractions from both sides.

$\frac{10}{1}\left(-x+\frac{3}{10}\right)=(2)(10)$

$-10x+3=20$

$-3 \quad -3$

$\frac{-10x}{-10}=\frac{17}{-10}$

$x=-\frac{17}{10}$

$x=-1.7$

$\frac{7}{1}\left(4x-\frac{2}{7}\right)=\left(-\frac{5}{7}\right)\frac{7}{1}$

$28x-2=-5$

$+2 \quad +2$

$\frac{28x}{28}=\frac{-3}{28}$

$x=-\frac{3}{28}$

$3\left(3x-12\right)=\left(\frac{2}{3}\right)\frac{3}{1}$

$9x-36=2$

$+36 \quad +36$

$\frac{9x}{9}=\frac{38}{9}$

$x=\frac{38}{9}$

OR

$x=4\frac{2}{9}$

$\frac{15}{1}\left(\frac{4x}{15}-2\right)=\left(-\frac{8}{15}\right)\frac{15}{1}$

$4x-30=-8$

$+30 \quad +30$

$\frac{4x}{4}=\frac{22}{4}$

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

$x=5.5$

$x=5\frac{1}{2}$