WARM-UP:

Solve and check.

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

$$2x-6-4x-8=-3x+9$$

$$+3x \qquad +3x$$

$$1x-6-8=9$$

$$1x-14=9$$

$$+14 \qquad +14$$

$$x=23$$

MPM 1DI

Grade 9 Academic Math

Day 63: Solve Equations with Fractions

Learning Goal:
Students can solve equations with fractions.

Mar 2-8:57 AM

EX. 1. Solve.

a) $\frac{k}{7} = 3$ $\times 7$

$k = 21$

b) $\frac{x}{4} - 1 = 6$

$+1 \quad +1$

$\frac{x}{4} = 7$ $\times 4$

$x = 28$

c) $\frac{(x+1)}{2} = 5$ $\times 2$

$x + 1 = 10$

$-1 \quad -1$

$x = 9$

Feb 27-2:41 PM

EX. 2. Solve and check.

$$\frac{3(y-5)}{4}=7$$

$$\cancel{4\times}\frac{(3y-15)}{\cancel{4}}=7\times 4$$

$$3y-\cancel{15}=28$$
$$+15 \quad +15$$

$$\frac{\cancel{3}y}{\cancel{3}}=\frac{43}{3}$$

$$y=\frac{43}{3}$$

$$\cancel{4\times}\frac{3(y-5)}{\cancel{4}}=7\times 4$$

$$3(y-5)=28$$

$$3y-15=28$$

$$3y=43$$

$$y=\frac{43}{3}$$

EX. 3. Solve.

$$3 \times 6 = \cancel{3 \times} \frac{1}{\cancel{3}}(8+x) \quad \xrightarrow{\text{OR}} \quad 3 \times 6 = \cancel{3 \times} \frac{1(8+x)}{\cancel{3}}$$

$$18 = 1(8+x)$$

$$18 = \cancel{8} + x$$

$$-8 \quad -\cancel{8}$$

$$10 = x$$

Feb 27-2:41 PM

What to do when there are TWO or MORE fractions?

Clear the fractions by multiplying everything by the common denominator.

EX. 4. Solve.

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

$$5(k+2)=3(k-4)$$

$$5k+10=\cancel{3k}-12$$
$$-3k \qquad -3k$$

$$2k+\cancel{10}=-12$$
$$-\cancel{10} \quad -10$$

$$\frac{\cancel{2}k}{2}=\frac{-22}{2}$$

$$k=-11$$

EX. 5. With a partner, solve and **check**. Write what you did beside each line.

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

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

$$\cancel{12x}^{4}\frac{(2x-5)}{\cancel{3}}=\cancel{12x}^{3}\frac{(3x-6)}{\cancel{4}}$$

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

$$8x-20=9x-18$$

$$-9x \qquad -9x$$

$$-1x-\cancel{20}=-18$$

$$+20 \qquad +20$$

$$\frac{\cancel{-1}x}{\cancel{-1}}=\frac{2}{-1}$$

$$x=-2$$

$$\cancel{12x}^{4}\frac{[1(2x-5)]}{\cancel{3}}=\cancel{12x}^{3}\frac{[3(x-2)]}{\cancel{4}}$$

$$4[1(2x-5)]=3[3(x-2)]$$

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

$$8x-20=9x-18$$

$$\vdots$$

EX. 6. Try to solve as many as you can.

$$\frac{c}{-5}+1=3$$

$c=-10$

$$\frac{3}{8}(b-3)=1$$

$b=\frac{17}{3}$

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

$h=\frac{-23}{2}$

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

$x=18$

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

$x=23$

Practice: p. 207 C1a), C3 #1, 3, 4, 11
(practice good form)