

## What's Going On?

**Checking In**

Slight Return

**Minds on**

Lowest Common Multiples

**Action!**

"Dealing With" Fractions

**Consolidation**

Stepping Out

**Learning Goal - I will be able to solve equations involving fractions!**

Unit test on Thursday March 7th

## Checking In

Solving for  $x$  means:

Finding the value of  $x$  that makes the equation true.

Our ultimate goal is to end up with an equation that says " $x = \underline{\quad}$ ".

## Checking In

Friday's exit cards

$$a) 3x + 10 = 22$$

$$- 10 \quad -10$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

## Checking In

Friday's exit cards

$$b) \quad 3(\boxed{x} - \boxed{3}) = -3(\boxed{x} - \boxed{4}) - 6$$

$$3x - 9 = -3x + 12 - 6$$

$$3x - 9 = -3x + 6$$

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

$$6x - 9 = 6$$

$$+9 \qquad \qquad +9$$

$$6x = 15$$

$$\frac{6x}{6} = \frac{15}{6}$$

$$x = \frac{15}{6}$$

$$\text{or } x = 2.5$$

**Minds on****Fractions Review**

The top part of a fraction is the numerator.

The bottom part of a fraction is the denominator.

Can you add fractions with different denominators? **NO**

Can you multiply fractions with different denominators?

**Yes.**

$$\frac{\quad}{4} \quad \frac{1}{4} \left( \quad \right)$$

 Minds on

## Fractions and Equations

## Minds on

### Lowest Common Multiples

What is the lowest common multiple of:

2 and 3  $\rightarrow 6$

5 and 2  $\rightarrow 10$

3 and 4  $\rightarrow 12$

4 and 8  $\rightarrow 8 \rightarrow 4 \times 2$   
 $\rightarrow 8 \times 1$

4 and 5  $\rightarrow 20 \rightarrow 4 \times 5$

6 and 8  $\rightarrow 24 \rightarrow 6 \times 4$   
 $\rightarrow 3 \times 8$



**Action!**

## "Dealing With" Fractions

Solve for x.

$$\frac{x}{3} = 6$$

$$\cancel{3} \left( \frac{x}{\cancel{3}} \right) = (6) \times 3$$

$$1x = 18$$

**Action!**

## "Dealing With" Fractions

Solve for x.

$$5 \times \left( \frac{2x}{5} \right) = (13) \times 5$$

$$2x = 65$$

$$x = \frac{65}{2}$$

**Action!**

## "Dealing With" Fractions

Solve.

$$1 \quad \cancel{4} \times \left( \frac{3(y-5)}{\cancel{4}_1} \right) = (7) \times 4$$

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

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

$$3y - 15 = 28$$

$$+15 \quad +15$$

$$3y + 0 = 43$$

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

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

$$y = \underline{\quad}$$

**Action!****"Dealing With" Fractions**

Solve.

$$\frac{5c + 6}{3} = \frac{2c + 12}{2}$$

To deal with fractions on both sides:

1. Find the lowest common multiple of both denominators.

the bottom part of the fraction.

e.g. 3 and 2: LCM = 6

2. Multiply both sides of the equation by the LCM.

**Action!****"Dealing With" Fractions**

Solve.

$$6 \times \left( \frac{5c+6}{3} \right) = \left( \frac{2c+12}{2} \right) \times 6$$

LCM  
3 and 2:  
6.

Solve.

$$\cancel{2} \times \cancel{3} \times \left( \frac{5c+6}{\cancel{3}} \right) = \left( \frac{2c+12}{\cancel{2}} \right) \times \cancel{2} \times \cancel{3}$$

$$2 \times (5c+6) = (2c+12) \times 3$$

$$2(5c+6) = 3(2c+12)$$

$$10c+12 = 6c+36$$

$$\begin{array}{r} -6c \\ -6c \end{array}$$

$$4c+12 = 36$$

$$\begin{array}{r} -12 \\ -12 \end{array}$$

$$4c+0 = 24$$

$$\frac{4c}{4} = \frac{24}{4}$$

$$\frac{24}{4}$$

$$c = 6$$

## Consolidation

## Stepping It Out

Explain in your own words the steps you would take to solve an equation involving fractions.

Solve.

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

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

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

$$12 \times \left( \frac{2x-5}{3} \right) = \left( \frac{3(x-2)}{4} \right) \times 12$$

LCM  
3 and 4:  
12.

$$4 \times 3 \times \left( \frac{2x-5}{3} \right) = \left( \frac{3(x-2)}{4} \right) \times 4 \times 3$$

$$4 \times (2x-5) = (3(x-2)) \times 3$$

$$4(2x-5) = 3 \times 3 \times (x-2)$$

$$4(2x-5) = 9(x-2)$$

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

$$-1 \times \left( \frac{-20}{+20} \right) = -18 + 20$$

$$-x = 2$$

$$x = -2$$

Remember  
 $\frac{1}{3}(2x-5)$  and  $\frac{3}{4}(x-2)$   
**ARE THE S.**

## Consolidation

Check for:	What to do:	Example:
<p>1 Fractions</p>	<p>Multiply both sides by the lowest common multiple of the denominators.</p>	$\frac{3a-1}{2} = \frac{3+5a}{4}$ <p style="text-align: right; border: 1px solid red; padding: 2px;">LCM: 4</p> $4 \times \left( \frac{3a-1}{2} \right) = \left( \frac{3+5a}{4} \right) \times 4$

$$2 \times \cancel{2} \times \left( \frac{3a-1}{\cancel{2}} \right) = \left( \frac{3+5a}{\cancel{4}} \right) \times \cancel{4}$$

$$2 \times (3a-1) = 3+5a$$

$$2(3a-1) = 3+5a$$

Solve.

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

1. Find the lowest common multiple of all denominators.
2. Multiply both sides by the lowest common multiple of all fractions.
3. Use the distributive property to remove brackets.
4. Collect like terms and simplify.
5. Move all variable terms to one side of the equal sign using opposite operations.
6. Move all constant terms to the other side of the equal sign using opposite operations.
7. Solve for the variable by dividing both sides by its coefficient.



**Consolidation****Homework!!!**

Page number: p  
 $p - 108 = 100$

$$p = 208$$

Questions: q, r, u, w, x

$$\underline{12q - 7 = 5}$$

$$\underline{6r + 3 = 21}$$

$$r = 3$$

$$u = 6$$

$$\underline{8u - 2 + 2u = 58}$$

$$\underline{7w - 6 = 43}$$

$$w = 7$$

$$\underline{-2x + 5 = -11}$$

$$x = 8$$

## Consolidation

# Homework!!!

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Unit test on Thursday, March 7th