

Name: Key  
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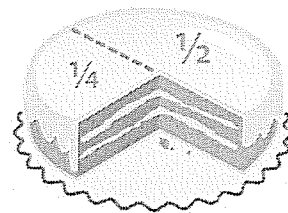
Mr. Johnson  
Math 8

### Lesson 6.3 – Solving Equations Involving Fractions

Think it out:

Which number could you multiply  $\frac{2}{5}$  by to get a product of 2?

$$\frac{2}{5} \times 5 = 2$$



Which number could you multiply  $\frac{5}{7}$  by to get a product of 5?

$$\frac{5}{7} \times 7 = 5$$

Notes:

Equations that involve fractions cannot be easily modelled with algebra tiles or balance scales? Can you think why this would be?

*tough to split a tile*

Instead, we write and solve equations involving fraction using algebra.

We follow the same steps as we did last section. To review:

- First, we use reverse BEDMAS to assist us in isolating our variable
- Second, we will get rid of the number that is either being multiplied or divided by our variable. In this section we will be multiplying since it is the opposite operation of dividing.
- Last, check your solution

Examples:

1.  $\frac{x}{4} + 3 = 11 - 3$

$$(4) \frac{x}{4} = 8(4)$$

$$x = 32$$

check:

$$\frac{32}{4} + 3 = 11$$

$$8 + 3 = 11$$

$$11 = 11 \checkmark$$

2.  $1 + \frac{x}{2} = -11 - 1$

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

$$x = -24$$

$$1 + \frac{(-24)}{2} = -11$$

$$1 - 12 = -11$$

$$-11 = -11 \checkmark$$

$$3. \quad -4 = -8 - \frac{x}{4}$$

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

$$16 = -x$$

$$-16 = x$$

tell students what happens with division by -1

check:

$$-4 = -8 - \frac{(-16)}{4}$$

$$-4 = -8 + 4$$

$$-4 = -4 \quad \checkmark$$

$$4. \quad 9 = \frac{x}{9} + 9$$

$$(9) 0 = \frac{x}{9} (9)$$

$$0 = x$$

$$\text{check } 9 = \frac{0}{9} + 9$$

$$9 = 9 \quad \checkmark$$

Make up a question that you think would be difficult to solve and exchange it with a partner. Make sure the question isn't too crazy!

Example:

One-third of the Grade 8 students at OKM went to the school dance. There were 5 parent chaperones to watch over their little children so they wouldn't get into mischief. There were 63 people at the dance. How many students are in grade 8. (Write an equation to solve the problem)

let  $x$  represent the # of grade 8 students

$$\frac{x}{3} + 5 = 63$$

$$(3) \frac{x}{3} = 58 (3)$$

$$x = 174$$

check:

$$\frac{174}{3} + 5 = 63$$

$$58 + 5 = 63$$

$$63 = 63 \quad \checkmark$$



174 students are in grade 8

Assignment:

Pg. 336-337  
#s 3-11, 13, 14