

# 1.OA Fact Families

Alignments to Content Standards: 1.OA.B

## Task

### Materials

- Fact Family work sheets
- Blank addition and subtraction frames (2 of each)
- Numbers cards in fact-family sets

### Actions

As a whole class, the teacher presents students with 3 numbers on cards, such as 5, 8, and 3. The teacher asks the students to find all the ways the numbers can be put together in addition or subtraction sentences. The teacher will provide a set of frames, preferably on sentence strips in a pocket chart:

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

As the students determine the first equation, the teacher places the corresponding numbers in the pockets of the chart to represent it. Then the teacher points to the second addition sentence frame and asks,

*Is there another addition equation we can write using these three numbers?*

Once the students name the equation, the teacher then takes out another set of the same number cards and place them in the appropriate spots in the second equation.

The teacher then points out that the next equation is subtraction and asks the students to find a subtraction equation using the same three numbers. Both subtraction equations need to be determined, with the corresponding numbers placed in the pocket chart. When completed, the frames should look like this:

$$5 + 3 = 8$$

$$3 + 5 = 8$$

$$8 - 5 = 3$$

$$8 - 3 = 5$$

The students can chant in unison the 4 equations so they can both see and say them. Particularly at the beginning of first grade some students may confuse the +, -, and = symbols.

Then, in partners, students are given sets of 3 related numbers (see examples on the worksheet) and asked to find two addition and two subtraction equations with the same three numbers.

Once students are familiar with the objective, they are given the first worksheet. This practice can be given to individuals or partners to complete, or can be completed by the entire class together using a document projector with students coming up to write their equations.

## IM Commentary

The purpose of this task is for students to identify and write sets of related addition and subtraction equations; these are often known as "fact families" because the equations are related by the same underlying relationship between the numbers. This task reinforces the commutative property of addition and using the relationship between addition and subtraction. It is best given after the students have had quite a bit of experience adding and subtracting within 10. Note that there are actually 8

equations that can be written for every fact family; the attached worksheet has the 4 equation and 8 equation variants.

Creating the two addition equations will be easier for most children. When observing the subtraction equations the students create, one can determine their depth of understanding by noting whether or not the students use the minuend to begin the equation or the subtrahend. If some students are confused, cubes or manipulatives can be provided to model the equations. For a related task that employs pictures and encourages students to write eight related equations, see [1.OA Fact Families with Pictures](#).

To guide students who are experiencing confusion, or as an extension for those who show facility with the concept, arrows can be drawn connecting the same numbers in different equations. Alternatively, the same numbers can each be circled in a particular color (i.e. all 5's circled in blue, 3's circled in red, 8's circled in green). This will indicate how each equation uses the same three numbers.

As an extension, students can create their own fact family numbers and corresponding equations, using the second worksheet without prepared numbers. A further extension to challenge advanced students would be to give students two numbers (i.e. 7 and 4) and ask them to find a third number that will form a fact family; here the student might add either 3 or 11. The student should then write the corresponding equations.

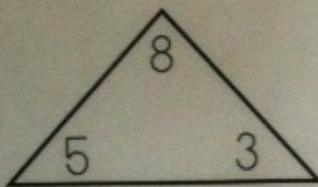
The term "fact family" is used here to talk about the special relationship between these addition and subtraction facts, similar to the idea that people in a family have a special relationship to each other because of deep connections they share. This metaphor was chosen because it is one that connects with students' lives. Math vocabulary such as addend, sum, minuend, subtrahend, and difference can be introduced in this task, but their use is not one of the primary objectives.

[Edit this solution](#)

## **Solution**

Name Kristin

Date 9/6/2013

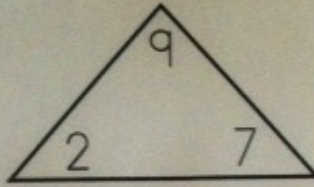


$$\underline{3} + \underline{5} = \underline{8}$$

$$\underline{5} + \underline{3} = \underline{8}$$

$$\underline{8} - \underline{3} = \underline{5}$$

$$\underline{8} - \underline{5} = \underline{3}$$

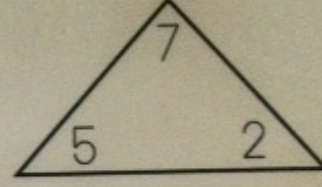


$$\underline{2} + \underline{7} = \underline{9}$$

$$\underline{7} + \underline{2} = \underline{9}$$

$$\underline{9} - \underline{2} = \underline{7}$$

$$\underline{9} - \underline{7} = \underline{2}$$

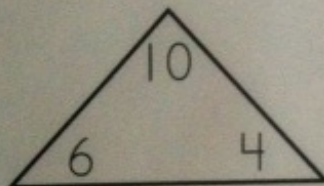


$$\underline{2} + \underline{5} = \underline{7}$$

$$\underline{5} + \underline{2} = \underline{7}$$

$$\underline{7} - \underline{2} = \underline{5}$$

$$\underline{7} - \underline{5} = \underline{2}$$

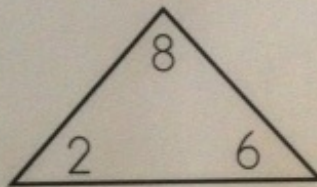


$$\underline{4} + \underline{6} = \underline{10}$$

$$\underline{6} + \underline{4} = \underline{10}$$

$$\underline{10} - \underline{4} = \underline{6}$$

$$\underline{10} - \underline{6} = \underline{4}$$

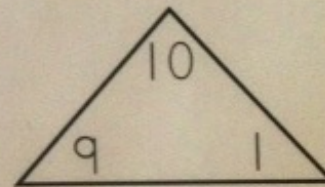


$$\underline{2} + \underline{6} = \underline{8}$$

$$\underline{6} + \underline{2} = \underline{8}$$

$$\underline{8} - \underline{6} = \underline{2}$$

$$\underline{8} - \underline{2} = \underline{6}$$



$$\underline{1} + \underline{9} = \underline{10}$$

$$\underline{9} + \underline{1} = \underline{10}$$

$$\underline{10} - \underline{1} = \underline{9}$$

$$\underline{10} - \underline{9} = \underline{1}$$

