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Fact family in maths

This article explains how to use fact families to help children learn the basic addition and subtraction facts (with single-digit numbers), and also contains a complete example lesson with exercises and word problems about fact families where the sum is 13 or 14. What is a fact family? A fact family is a group of math facts using the same numbers. In the case of addition/subtraction, you use three numbers and get four facts. For example, you can form a fact family using the three numbers 10, 2, and 12: $10 + 2 = 12$, $2 + 10 = 12$, $12 - 10 = 2$, and $12 - 2 = 10$. Where do we use fact families? We can use fact families to reinforce or learn the connection between addition and subtraction, and to help children memorize the basic addition & subtraction facts. The two videos below explain several strategies for learning addition and subtraction facts, including number rainbows and fact families. For some extra practice, check out IXL's fact families lesson! A Lesson on Fact Families - sums with 13 and 14. Fill in. In each fact family, color the marbles so they match the numbers in it. Fact families with 13: 10, 3, and 13 $10 + 3 = 13$, $3 + 10 = 13$, $13 - 10 = 3$, and $13 - 3 = 10$. Fact families with 14: 10, 4, and 14 $10 + 4 = 14$, $4 + 10 = 14$, $14 - 10 = 4$, and $14 - 4 = 10$. Fact families with 13: 9, 4, and 13 $9 + 4 = 13$, $4 + 9 = 13$, $13 - 9 = 4$, and $13 - 4 = 9$. Fact families with 14: 9, 5, and 14 $9 + 5 = 14$, $5 + 9 = 14$, $14 - 9 = 5$, and $14 - 5 = 9$. Fact families with 13: 8, 5, and 13 $8 + 5 = 13$, $5 + 8 = 13$, $13 - 8 = 5$, and $13 - 5 = 8$. Fact families with 14: 8, 6, and 14 $8 + 6 = 14$, $6 + 8 = 14$, $14 - 8 = 6$, and $14 - 6 = 8$. Fact families with 13: 7, 6, and 13 $7 + 6 = 13$, $6 + 7 = 13$, $13 - 7 = 6$, and $13 - 6 = 7$. Fact families with 14: 7, 7, and 14 $7 + 7 = 14$, $7 + 7 = 14$, $14 - 7 = 7$, and $14 - 7 = 7$. 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This lesson is taken from Maria Miller's book *Mammoth Add & Subtract 2A*, and posted at www.HomeschoolMath.net with permission from the author. Copyright © Maria Miller. A fact family in math is a group of math facts created using three numbers. Numbers also have relationships, just like members of a family. These relations between numbers are well described using fact families. A fact family can be defined as a collection of math facts that express the relation between the same set of numbers. It is also known as a "number family" and generally uses three numbers. It helps to understand basic arithmetic operations (addition, subtraction, multiplication, and division) and solve their problems. More Worksheets Fact families are usually represented in the form of a triangle, as shown in the below image. The three numbers forming the fact family are written in the three corners (near the vertices) of the triangle. The operation's sign connecting the three numbers is usually written in the middle. For the addition fact family, the sum of the numbers is usually written at the top vertex, and the numbers being added are written at the bottom two vertices. Take a look at the fact family triangle given below. The numbers 9, 4, and 5 are part while 9 is the whole. In a multiplication and division fact family, the three numbers will have two addition and two subtraction relationships. Here, for instance, a fact family has been created using the numbers 12, 8, and 4, where 12 is the total number of crayons, out of which 8 are yellow and 4 are red. The four relationships here are as follows. $4 + 8 = 12$ and $8 + 4 = 12$. $12 \div 8 = 1.5$ and $12 \div 4 = 3$. Let's take another example with the numbers 9, 4, and 5. Here, 4 and 5 are parts while 9 is the whole. In a multiplication and division fact family, the three numbers will have two multiplication and two division relationships. For instance, let's consider an art class where 8 students sit at 4 tables in groups of 2. Four relations formed using the numbers 2, 4, 8 are: $4 \times 2 = 8$, $2 \times 4 = 8$, $8 \div 4 = 2$ and $8 \div 2 = 4$. Let's take another example. Here, 4 and 3 are parts, while 12 is the whole. One exciting thing about fact families is that they represent the inverse relationship between operations. Get ready to rap! Three numbers—it's a family bond! Just multiply or divide to respond. Or whether you add or subtract. In the end, you get a family of facts! A fact family is a fundamental concept that lets the brain think of various arithmetic operations and combinations of numbers. This will help in developing problem-solving skills and enhance analytical thinking capabilities. Form two addition and subtraction equations for the fact family diagram given below. Solution: The three numbers 10, 2, and 8 form an addition and subtraction fact family. The equations for addition are as follows: Addition equations $8 + 2 = 10$ and $2 + 8 = 10$. The equations for subtraction are as follows: Subtraction equations $10 - 8 = 2$ and $10 - 2 = 8$. Form multiplication and division equations for the fact family triangle given below. Solution: Multiplication equations $6 \times 12 = 72$ and $12 \times 6 = 72$. Division equations $72 \div 6 = 12$ and $72 \div 12 = 6$. Form a fact family triangle with numbers 4, 5, and 20. Write the equations. Solution: Multiplication equations $4 \times 5 = 20$ and $5 \times 4 = 20$. Division equations $20 \div 4 = 5$ and $20 \div 5 = 4$. Complete the fact family triangle and equations for the three numbers: 3, 6 and 9. Solution: The equations are as follows: $3 + 6 = 9$ and $6 + 3 = 9$. $9 \div 3 = 3$ and $9 \div 6 = 1.5$. Test your knowledge. Correct answer is: $10 \div 5 = 2$ and $2 \times 5 = 10$ is an addition and subtraction fact family, where two addition sentences are given in the problem statement with one subtraction sentence. The missing subtraction sentence that matches the fact family of three numbers 2, 8, and 10 is $10 \div 8 = 1.25$, equal to 2. Correct answer is: $8 \times 15 = 120$. $5 \times 8 = 40$, which does not belong to the fact family. Correct answer is: 102, 10, and 20 form a multiplication and division fact family where the two possible division operations are $20 \div 10 = 2$ and $20 \div 2 = 10$. How can we efficiently teach fact family to children? Instead of handing out math worksheets, play a game with your children using fun things like jelly beans. Give jelly beans in a set of three numbers, say 2, 3, and 5. Ask them to create an addition and subtraction fact family using the jelly beans. Repeat for multiplication and division fact family. How are fact families and arrays related? 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