

Dear Family,

Your child is learning about equivalent ratios.



Your child has already learned that a ratio compares any two quantities and that a ratio has a related rate. Now your child is learning that equivalent ratios are ratios that have the same rate.

You may be familiar with using ratios in recipes, in calculating miles per gallon, or in cost per item. A fruit salad recipe that uses 3 apples for every 2 pints of berries has a 3 to 2 ratio of apples to pints of berries. To double the recipe, multiply each quantity by 2. So use 6 apples and 4 pints of berries. To make three times as much fruit salad, multiply both quantities by 3. You need 9 apples and 6 pints of berries. Both of the ratios, 6 to 4 and 9 to 3, are equivalent to the ratio 3 to 2.

Consider the following example:

A cook uses 12 cartons of berries to make 4 jars of jam. How many cartons of berries are needed to make 6 jars of jam?



The next page shows two ways your child may use equivalent ratios to find the number of cartons of berries needed.

Vocabulary

equivalent ratios two or more ratios that are equal to one another.

ratio a way to compare two different quantities.

rate an equivalent ratio that compares the first quantity in a ratio to only one of the second quantity.

unit rate the number in a rate that is being compared to 1.



Equivalent Ratios: Sample Solution

How many cartons of berries are needed to make 6 jars of jam when it takes 12 cartons of berries to make 4 jars of jam?

To find how many cartons of berries are needed to make 6 jars of jam, write a ratio that is equivalent to the ratio 12 to 4.

One way: Draw a diagram to represent a ratio of 12 cartons of berries to 4 jars of jam.

- The ratio of berries to jam is 12 cartons to 4 jars.
- The related rate is 3 cartons to 1 jar.
- Multiply both quantities in the rate to find an equivalent ratio for 6 jars.

$$3 \times 6 = 18 \text{ and } 1 \times 6 = 6$$

An equivalent ratio is 18 to 6.

Another way:

Use a table to show equivalent ratios.

- Divide both quantities in the ratio 12 to 4 by 4 to find the related rate 3 to 1.

$$12 \div 4 = 3 \text{ and } 4 \div 4 = 1$$

- Multiply to find equivalent ratios.

	$3 \times 1 = 3$	$3 \times 2 = 6$	$3 \times 3 = 9$	$3 \times 4 = 12$	$3 \times 5 = 15$	$3 \times 6 = 18$
Cartons of Berries	3	6	9	12	15	18
Jars of Jam	1	2	3	4	5	6
	$1 \times 1 = 1$	$1 \times 2 = 2$	$1 \times 3 = 3$	$1 \times 4 = 4$	$1 \times 5 = 5$	$1 \times 6 = 6$

An equivalent ratio is 18 to 6.

Answer: Both methods show that the ratio 12 to 4 is equivalent to the ratio 18 to 6. This means that 18 cartons of berries are needed to make 6 jars of jam.

