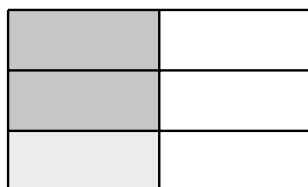


Fractions That Act on Quantities

Name: _____

Date: _____

Study the reasoning. Two thirds of one half is $\frac{2}{3} \times \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$. The whole rectangle is the garden; the darker overlap is the selected part.



One column is $\frac{1}{2}$ of the whole.

Two of its three parts are selected.

Overlap: $\frac{2}{6} = \frac{1}{3}$ of the whole.

Connect the model to the equation

1. Explain what the 2, 6, and 3 in $\frac{2}{6} = \frac{1}{3}$ describe. Why is the product smaller than $\frac{1}{2}$?

2. Complete $\frac{3}{4} \times \frac{2}{3} = \frac{\square}{12} = \square$. Partition this rectangle, shade the overlap, and connect it to the equation.



3. Predict, then calculate: $\frac{1}{2} \times \frac{2}{3}$, $1 \times \frac{2}{3}$, and $\frac{3}{2} \times \frac{2}{3}$. Explain the effect of each factor.

Fractions That Act on Quantities

Use common units and division meanings

4. A student writes $\frac{1}{2} + \frac{1}{3} = \frac{2}{5}$. Explain why this is unreasonable; find the correct sum. Then calculate $\frac{3}{4} + \frac{1}{6}$ and $\frac{5}{6} - \frac{1}{4}$. Show the equivalent fractions you use.

5. A 3-meter ribbon is cut into $\frac{1}{4}$ -meter pieces. How many pieces result? Write a division equation and check by multiplication.

6. A $\frac{1}{3}$ -liter serving is shared equally by 2 children. How much does each receive? Explain why the answer is smaller than $\frac{1}{3}$ liter.

Fractions That Act on Quantities

A fraction also names a quotient

Completed example. Three identical loaves are shared equally by four children. Divide each loaf into fourths. Each child gets one fourth from each loaf, so each receives $3 \times \frac{1}{4} = \frac{3}{4}$ loaf. Thus $3 \div 4 = \frac{3}{4}$. Check: $4 \times \frac{3}{4} = 3$ loaves.

7. Draw the three loaves and label one child's share in each. Explain why the answer is $\frac{3}{4}$ loaf, not $\frac{4}{3}$ loaves.

8. Two identical loaves are shared equally by 3 children. Complete: $2 \div 3 = \square$ loaf each. Connect a drawing to the equation.

9. Five identical loaves are shared equally by 2 children. Find each share and check it. Why can a fair share be greater than one whole loaf?
