

SUBTRACTING FRACTIONS

PURPOSE

This Mathsheets teaches how to subtract fractions with like denominators. It assumes that you have already done the first Mathsheets on adding fractions.

PREPARATION

You need graph paper and a pencil.

PROCEDURE

Teach or review with your child how to subtract fractions with like denominators. Once your child has solved the four questions provided on the next page, create additional questions with denominators other than 4 at the appropriate level of difficulty.

Type 1: The result is correct as is, for example $3/5 - 1/5 = 2/5$.

Type 2: The result must be reduced, for example $3/4 - 1/4 = 2/4 = 1/2$.

Type 3: The question involves mixed numbers, and the result is correct as is, for example $2\ 3/4 - 1\ 3/4 = 1$.

Type 4: The question involves mixed numbers and the result must be reduced, for example,
 $1\ 3/4 - 1\ 1/4 = 2/4 = 1/2$.

If the denominators are the same, you can subtract the numerators. The denominator stays the same.

$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} = \frac{2}{4} - \frac{1}{4} = \frac{1}{4} \quad \begin{array}{l} \text{Numerator} \\ \hline \text{Denominator} \end{array}$$

Sometimes when you subtract fractions, the answer needs to be **reduced**. The answer below, $2/4$, is the same as $1/2$, as you can readily see by imagining two small yellow squares in the same big square.

$$\begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} = \frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$$

You reduce fractions by dividing both the numerator and the denominator by the same number.

In the above example, when you divide the numerator and the denominator by 2, the result is $1/2$.

You may need to give your child extra practice reducing ($2/4$, $3/9$, $4/6$, $4/8$, $5/10$, $6/18$, $12/24$, etc.)

When subtracting mixed numbers, subtract the fraction from the fraction and then the whole number from the whole number.

$$\begin{array}{|c|c|c|c|} \hline \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} - \begin{array}{|c|c|c|c|} \hline \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \frac{1}{4} \\ \hline \end{array} = 1\ \frac{3}{4} - 1\ \frac{2}{4} = \frac{1}{4}$$

Sometimes when you subtract mixed numbers, the answer needs to be **reduced**. The answer below is the same as $1/2$, as you can readily see by imagining two small yellow squares in a big square.

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $-$

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $1 \frac{3}{4} - 1 \frac{1}{4} = \boxed{\frac{2}{4}}$

You reduce fractions by dividing both the numerator and the denominator by the same number.

In the above example, if you divide the numerator and the denominator by 2, the result is $1/2$.

You may need to give your child extra practice in reducing ($2/4$, $3/9$, $4/6$, $4/8$, $5/10$, $6/18$, $12/24$, etc.)

Type 1

$1/4$	$1/4$
$1/4$	$1/4$

 $-$

$1/4$	$1/4$
$1/4$	$1/4$

 $\frac{2}{4} - \frac{1}{4} = \boxed{}$

Type 2

$1/4$	$1/4$
$1/4$	$1/4$

 $-$

$1/4$	$1/4$
$1/4$	$1/4$

 $\frac{3}{4} - \frac{1}{4} = \boxed{} = \boxed{}$

Type 3

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $-$

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $1 \frac{3}{4} - 1 \frac{2}{4} = \boxed{}$

Type 4

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $-$

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $1 \frac{3}{4} - 1 \frac{1}{4} = \boxed{} = \boxed{}$

Type 4

$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$

 $-$

$1/4$	$1/4$
$1/4$	$1/4$

 $1 \frac{3}{4} - \frac{1}{4} = \boxed{} = \boxed{}$

Type 3

$1/4$	$1/4$	$1/4$	$1/4$	$1/4$	$1/4$
$1/4$	$1/4$	$1/4$	$1/4$	$1/4$	$1/4$

 $-$

$1/4$	$1/4$
$1/4$	$1/4$

 $2 \frac{3}{4} - \frac{2}{4} = \boxed{}$