Fractions and Decimals: *Key Skill 11*

Add and subtract fractions, including mixed numerals, with the same denominators

A **mixed numeral** is a number made up of a whole number and a proper fraction.

A **denominator** is the number below the line in a fraction. It that shows the number of parts a whole has been divided into.

When adding and subtracting with the same denominator, the numerator is added or subtracted and the denominator stays the same. With mixed numerals, the whole numbers are added or subtracted together and the fractions are added and subtracted together, then the whole numbers and fractions are added together. Show answers in their simplest form.

Level 1 Adding and subtracting

$$\frac{2}{6} + \frac{2}{6} = \frac{4}{6} \qquad \frac{3}{8} + \frac{4}{8} = \frac{7}{8} \qquad \frac{8}{9} - \frac{5}{9} = \frac{3}{9} \qquad \frac{5}{10} - \frac{3}{10} = \frac{2}{10}$$

Level 2 Adding and subtracting with mixed numerals

$$1\frac{2}{5} + 2\frac{1}{5} = (1+2) + \left(\frac{2}{5} + \frac{1}{5}\right) \qquad\qquad 7\frac{3}{6} - 4\frac{2}{6} = (7-4) + \left(\frac{3}{6} - \frac{2}{6}\right)$$
$$= 3 + \frac{3}{5} \qquad\qquad\qquad\qquad\qquad = 3 + \frac{1}{6}$$
$$= 3\frac{3}{5} \qquad\qquad\qquad\qquad\qquad = 3\frac{1}{6}$$

Level 3 Adding and subtracting when conversions are needed

$$\frac{4}{5} + \frac{4}{5} = \frac{8}{5} = 1\frac{3}{5} \qquad\qquad\qquad \frac{4}{6} + \frac{5}{6} = \frac{9}{6} = 1\frac{3}{6}$$
$$1\frac{1}{5} - \frac{4}{5} = \frac{6}{5} - \frac{4}{5} = \frac{2}{5} \qquad\qquad 1\frac{2}{4} - \frac{3}{4} = \frac{6}{4} - \frac{3}{4} = \frac{3}{4}$$

Level 4 Adding and subtracting with mixed numerals when conversions are needed

$$1\frac{5}{7} + 3\frac{4}{7} = (1+3) + \left(\frac{5}{7} + \frac{4}{7}\right) \qquad\qquad 3\frac{1}{8} - 1\frac{5}{8} = 2\frac{9}{8} - 1\frac{5}{8}$$
$$= 4 + \frac{9}{7} \qquad\qquad\qquad\qquad\qquad = (2-1) + \left(\frac{9}{8} - \frac{5}{8}\right)$$
$$= 4 + 1\frac{2}{7} \qquad\qquad\qquad\qquad\qquad = 1 + \frac{4}{8}$$
$$= 5\frac{2}{7} \qquad\qquad\qquad\qquad\qquad = 1\frac{4}{8}$$

WEB LINKS go to:

Video: Add and subtract fractions with same denominator

Video: Add and subtract fractions of different denominators

Video: Add and subtract uncommon denominators with mario

Game: Computation adding fractions

Game: Fraction word problems

Game: Adding and subtracting fractions

Game: Adding and subtracting fractions with different denominators

Fractions and Decimals: Key Skill 12

Find a simple fraction of a group

Fraction of a group is the same as the fraction of a whole. We find a fraction of a group of objects. So to find $\frac{1}{2}$ of 10 objects is 5 objects. Fractions of a quantity and fractions of a collection mean the same thing.

Multiplying fractions is the main way to find a fraction of a quantity. That is, if we need to find $\frac{1}{5}$ of 50, we can calculate $\frac{1}{2}$ x 50 = 25. Fractions of a group or fractions of a collection mean the same thing.

Start by multiplying fractions where the numerator is 1. When the numerator changes to more than 1, questions become harder e.g. $\frac{1}{3}$ of 12 first, then try $\frac{2}{3}$ of 12.

Use the multiplication symbol (x) and the word 'of' to multiply fractions by whole numbers. $\frac{2}{6}$ of 12 and $\frac{2}{6}$ x 12 mean the same thing.

The simplest way of multiplying a fraction by a whole number is to use the inverse operation. When we look at the example of $\frac{1}{2}$ x 50, we think 'How many times does 2 fit into 50?' (That is, 50 divided by 2 equals 25). Therefore $\frac{1}{2}$ x 50 = 25.

Another way is to:

- divide the whole number by the denominator
- then times the answer by the numerator.

Level 1

$\frac{1}{4}$ x 20 = 20 ÷ 4 (divide whole number by denominator)

$\qquad$ = 5 x 1 (times answer by numerator)

$\qquad$ = 5

Level 2

$\frac{3}{5}$ of 30 = 30 ÷ 5 (divide whole number by denominator)

$\qquad$ = 6 x 3 (times answer by numerator)

$\qquad$ = 18

Ask your child to find fractions of different amounts in daily life, e.g. Our shopping cost $125. What is $\frac{1}{4}$ of this?

WEB LINKS go to:

Video: Multiplying fractions by whole numbers visual

Video: Multiplying fractions by whole numbers

Game: Multiplying fractions