

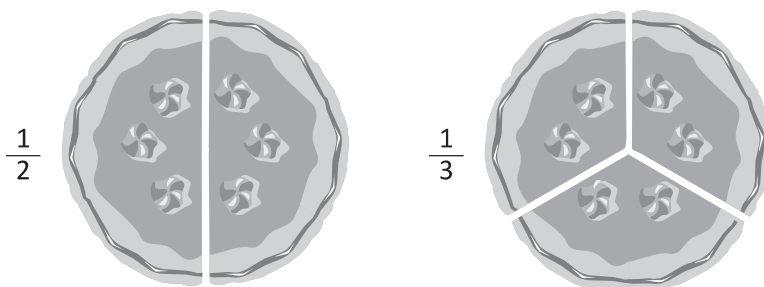
Fractions – renaming and ordering fractions

Sometimes we have to order and compare fractions with different numerators and denominators such as $\frac{1}{4}$, $\frac{1}{6}$ and $\frac{1}{5}$.

To do this, we have to find one common denominator for all the fractions.

- 1 You have 2 cakes for a class party. One has been cut into halves and one into thirds. The problem is that you want each slice to be a fair fraction of the cakes.

- a Continue cutting the cakes so that each cake has the same number of fair slices:



- b If you had one of these new slices, what fraction of the cake would you receive?

That is an example of how we rename fractions. We find a way to re-divide the wholes so that they have the **same number of parts**. To do this efficiently we find the smallest shared multiple. This is then called the **Lowest Common Denominator (LCD)**:

$\frac{1}{2}$ The multiples of 2 are 2, 4, **6**, 8, ... $\frac{1}{3}$ The multiples of 3 are 3, **6**, 9, 12, 15, ...

6 is the LCD so we convert both fractions to sixths:

$$\frac{1}{2} \begin{matrix} \times 3 \\ = \\ \times 3 \end{matrix} \begin{matrix} 3 \\ 6 \end{matrix}$$

$$\frac{1}{3} \begin{matrix} \times 2 \\ = \\ \times 2 \end{matrix} \begin{matrix} 2 \\ 6 \end{matrix}$$

- 2 Rename these fractions by first finding the shared LCD and then converting the fractions. Use the multiplication table on the right to help you find the LCD:

a $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$

12		

b $\frac{3}{6}$ $\frac{1}{2}$ $\frac{1}{3}$

c $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{6}$

× 2	× 3	× 4	× 5	× 6
2	3	4	5	6
4	6	8	10	12
6	9	12	15	18
8	12	16	20	24
10	15	20	25	30
12	18	24	30	36
14	21	28	35	42
16	24	32	40	48
18	27	36	45	54

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- 3** Look at each group of fractions. Predict which you think is the largest and circle your prediction. Now, rename the fractions in the work space below so that each fraction in the group has the same denominator. Use a different colour to circle the largest fraction. Are there any surprises?

a $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{9}$

b $\frac{2}{5}$ $\frac{1}{2}$ $\frac{1}{3}$

c $\frac{3}{4}$ $\frac{2}{3}$ $\frac{4}{8}$

d $\frac{3}{4}$ $\frac{3}{6}$ $\frac{3}{8}$

- 4** This time, rename the fractions and circle the largest. Underline the smallest.

a $\frac{3}{8}$ $\frac{2}{4}$ $\frac{5}{6}$

b $\frac{4}{7}$ $\frac{1}{2}$ $\frac{11}{14}$

c $\frac{1}{3}$ $\frac{5}{8}$ $\frac{4}{6}$

d $\frac{3}{4}$ $\frac{2}{3}$ $\frac{1}{2}$

- 5** For each fraction write a larger fraction below. The new fraction must have a different denominator. It can have a different numerator.

$\frac{1}{2}$

$\frac{1}{3}$

$\frac{2}{3}$

$\frac{4}{5}$

$\frac{9}{15}$

If you can do this, you are a whiz! This is real extension Maths.

