Finding and converting to the lowest common denominator

To obtain the lowest common denominator (LCD) of two or more fractions, we need to find the lowest common multiple (LCM) of the denominators of these fractions.

**WORKED Example 1**

Find the lowest common denominator of \( \frac{5}{6} \) and \( \frac{3}{8} \).

**THINK**

1. To obtain the lowest common denominator of the given fractions, we need to find the lowest common multiple (LCM) of 6 and 8. To find the LCM, list some multiples of 6 and 8 and select the smallest number that is on both lists.
2. LCM represents the lowest common denominator, so write the answer.

**WRITE**

Multiples of 6: 6, 12, 18, 24, 30, 36, 42, 48
Multiples of 8: 8, 16, 24, 32, 40, 48, 56, 64
LCM = 24

LCD of \( \frac{5}{6} \) and \( \frac{3}{8} \) is 24.

To convert a fraction to the lowest common denominator (LCD), we need to establish how many times the original denominator fits or divides into the LCD. We then need to multiply both numerator and denominator of the fraction by that number.

**WORKED Example 2**

Convert \( \frac{5}{6} \) and \( \frac{3}{8} \) to fractions with the lowest common denominator of 24.

**THINK**

1. Consider \( \frac{5}{6} \). The denominator 6 goes into 24 (the LCD) 4 times. So multiply both numerator and denominator of \( \frac{5}{6} \) by 4.
2. Consider \( \frac{3}{8} \). The denominator 8 goes into 24 (the LCD) 3 times. So multiply both numerator and denominator of \( \frac{3}{8} \) by 3.

**WRITE**

\[ \frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24} \]
\[ \frac{3}{8} = \frac{3 \times 3}{8 \times 3} = \frac{9}{24} \]

**Try these**

1. Find the lowest common denominator of each of the following pairs of fractions.
   - \( \frac{5}{7} \) and \( \frac{1}{6} \)
   - \( \frac{3}{4} \) and \( \frac{2}{3} \)
   - \( \frac{1}{6} \) and \( \frac{1}{4} \)
   - \( \frac{2}{3} \) and \( \frac{3}{5} \)
   - \( \frac{2}{3} \) and \( \frac{5}{6} \)
   - \( \frac{1}{6} \) and \( \frac{5}{8} \)
   - \( \frac{3}{5} \) and \( \frac{3}{4} \)
   - \( \frac{5}{9} \) and \( \frac{5}{6} \)
   - \( \frac{1}{3} \) and \( \frac{4}{9} \)
   - \( \frac{5}{12} \) and \( \frac{7}{8} \)

2. Convert each pair of fractions in question 1 to fractions with their respective lowest common denominators.