

1.2.1 Fractions

Name: _____ Class: _____ Date: _____

KEY WORDS improper fraction

<!-- Session 2 native-skill companion -->

Objective

Practise fractions within the labelled native lessons. Public original tasks; locally authored answer guidance.

1 Key knowledge and worked examples

■ Exact fractions and mixed-number operations • Foundation

Convert mixed numbers to improper fractions. Add or subtract using a common denominator; multiply numerators and denominators; divide by a nonzero fraction by multiplying its reciprocal. Cancel common factors, not added terms. These rules also apply to negative fractions.

$$\frac{3}{4} \div \frac{5}{8} = \frac{3}{4} \times \frac{8}{5} = \frac{6}{5}$$

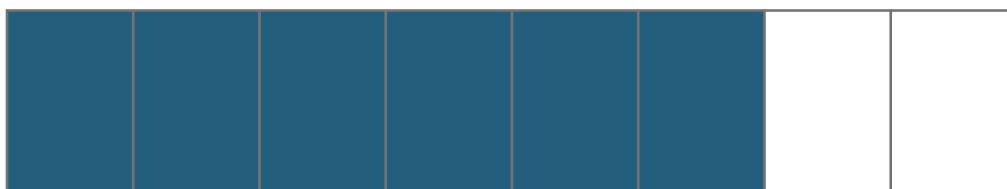
$1\frac{1}{2} - \frac{3}{4} = \frac{6}{4} - \frac{3}{4} = \frac{3}{4}$. Also $(-\frac{2}{3}) \times (\frac{9}{4}) = -\frac{18}{12} = -\frac{3}{2}$ and $(\frac{3}{4}) \div (\frac{5}{8}) = (\frac{3}{4}) \times (\frac{8}{5}) = \frac{6}{5}$. A common denominator gives $\frac{5}{6} + \frac{3}{4} = \frac{10}{12} + \frac{9}{12} = \frac{19}{12}$. Check division by multiplying $\frac{6}{5}$ by $\frac{5}{8}$ to recover $\frac{3}{4}$. Exact multiples of π follow ordinary arithmetic: $3\pi + 2\pi = 5\pi$ and $6\pi/3 = 2\pi$. Leave an answer such as 5π exact when requested; $\pi \approx 3.14$ would introduce approximation. For subtraction, $\frac{5}{6} - \frac{3}{4} = \frac{10}{12} - \frac{9}{12} = \frac{1}{12}$; for a negative mixed number, $-1\frac{1}{2}$ means $-(1 + \frac{1}{2}) = -\frac{3}{2}$.

Adding denominators does not preserve the unit size: $\frac{1}{2} + \frac{1}{3}$ is not $\frac{2}{5}$. Cancel only factors of a whole numerator and denominator. A division by zero is undefined.

For a non-calculator question show the common denominator or reciprocal step. Convert $\frac{19}{12}$ to $1\frac{7}{12}$ if a mixed number is requested; round only when the question explicitly needs a decimal.

Six eighths contain $\frac{6}{5}$ groups of five eighths

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



One group of $\frac{5}{8}$

Original native-lesson illustration; labels belong to its worked example.

2 Practice

2.1 (Foundation) Find $1\frac{1}{2} - \frac{3}{4}$.

2.2 (Foundation) Find $(-\frac{2}{3}) \times (\frac{9}{4})$.

2.3 (Foundation) Find $(\frac{3}{4}) \div (\frac{5}{8})$.

3 Exam-style questions

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: To add two fractions, add their numerators and add their denominators.

Solutions

2.1 $6/4 - 3/4 = 3/4 = 0.75$.

2.2 $(-2 \times 9) / (3 \times 4) = -18/12 = -1.5$.

2.3 Multiply by $8/5$: $24/20 = 6/5 = 1.2$.

3.1 False. $1/2 + 1/2 = 1$, while $(1+1)/(2+2) = 1/2$. Use a common denominator and add the adjusted numerators.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.