

Multiplication and Division of Fractions

Chapter 8: Working with Fractions · Topic 1

Key Concept

For example, $\frac{2}{3} \times \frac{3}{4} = \frac{(2 \times 3)}{(3 \times 4)} = \frac{6}{12}$, which simplifies to $\frac{1}{2}$. Dividing $\frac{3}{4}$ by $\frac{1}{2}$ means multiplying $\frac{3}{4}$ by the reciprocal of $\frac{1}{2}$ (which is $\frac{2}{1}$), giving $\frac{3}{4} \times \frac{2}{1} = \frac{6}{4}$, which simplifies to $\frac{3}{2}$. Understanding why 'dividing by a fraction means multiplying by its reciprocal' relates to the fact that dividing by a number smaller than 1 should give a larger result, which multiplying by the reciprocal correctly achieves.

Quick Revision Notes

- To multiply fractions: multiply numerators together and denominators together, then simplify.
- To divide by a fraction: multiply by its reciprocal (flipped fraction).
- Example: $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$.
- Dividing by a fraction smaller than 1 gives a result larger than the original number.

Practice Questions

- 1 Divide $\frac{3}{4}$ by $\frac{1}{2}$.
- 2 Multiply $\frac{2}{5}$ by $\frac{3}{7}$.
- 3 Explain why dividing by a fraction is the same as multiplying by its reciprocal.