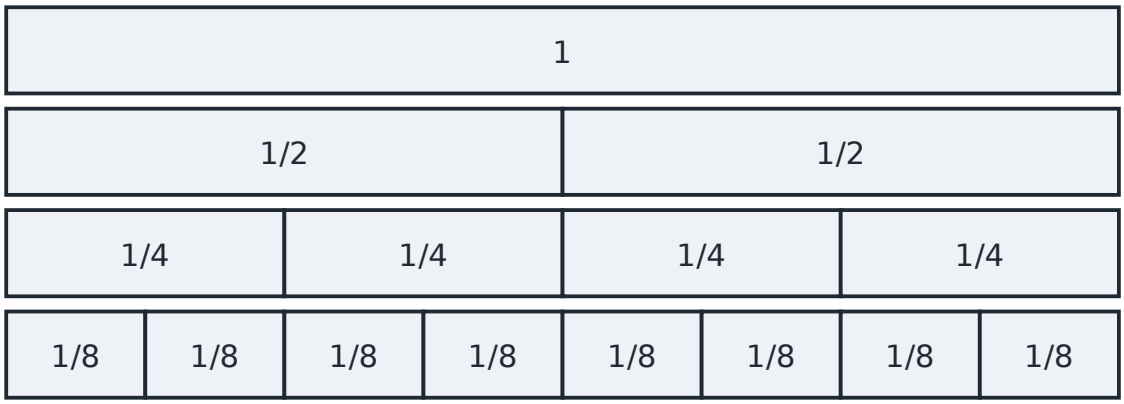
Extension & Challenge — Calculating with Number

Part A — Fractions on the Wall

A fraction wall lines up halves, quarters and eighths so you can *see* when two fractions are equal and add or subtract them by matching pieces.

> **Worked example.** *½ + 1/8*. On the wall, one half lines up with *4/8*. So *½ + 1/8 = 4/8 + 1/8 = 5/8*.

Fraction strips



A fraction wall: one whole, halves, quarters and eighths.

1 Use the fraction wall to write **three** fractions that are equal to ½.

2 Add these fractions. Use the wall to check each answer.

(a) *½ + ¼ =* _____

(b) *3/8 + ¼ =* _____

3 Subtract. Write each answer in its simplest form.

(a) $1 - 5/8 =$ _____

(b) $¾ - 1/8 =$ _____

4 Which is larger, $5/8$ or $¾$? Use the fraction wall to justify your answer.

5 A pizza is cut into eighths. Mia eats $3/8$ and Sam eats $¼$. What fraction of the pizza is left?

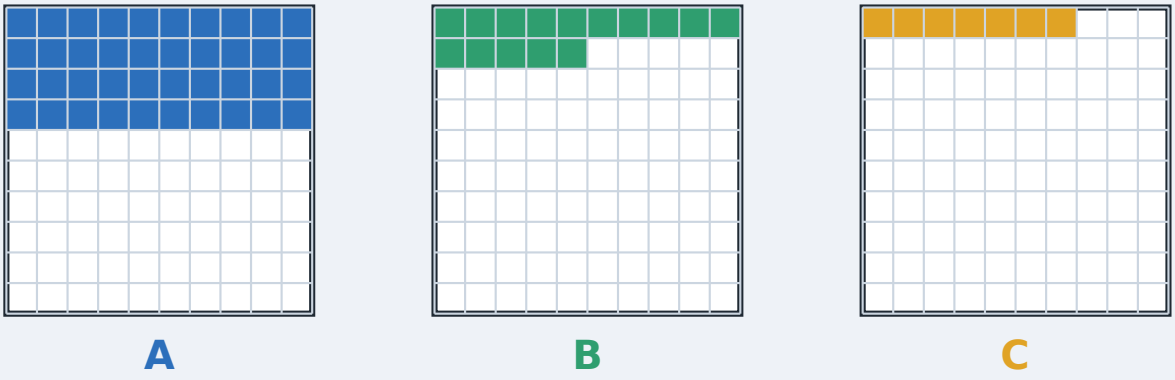
6 **Prove it.** Show, using the fraction wall, why $1/8 + 1/8 + 1/8 + 1/8 = ½$.

Part B — Decimals, Fractions & Percentages

A hundredths grid has 100 small squares, so each shaded square is one hundredth: $0.01 = 1/100 = 1\%$. The same picture can be read as a decimal, a fraction *or* a percentage.

> **Worked example.** A grid has 30 of its 100 squares shaded. That is 0.30 as a decimal, $30/100 = 3/10$ as a fraction, and 30%.

What decimal is shaded?



Three hundredths grids, A, B and C. Count the shaded squares carefully.

1 For each grid, write what is shaded as a decimal, a fraction (out of 100) and a percentage.

Grid	Decimal	Fraction	Percentage
A			
B			
C			

2 Order the three shaded amounts from smallest to largest.

3 If you combined the shading from grid A and grid C onto one grid, what decimal would be shaded?

Answer: _____

4 How much *more* is shaded in grid A than in grid B? Give your answer as a decimal and as a percentage.

5 Complete these conversions.

(a) $0.4 =$ _____ $\% =$ _____ $/10$

(b) $0.25 =$ _____ $/4$

6 **Reasoning.** Which grid shows a value equal to $\frac{1}{4}$? Explain how you know without measuring.