

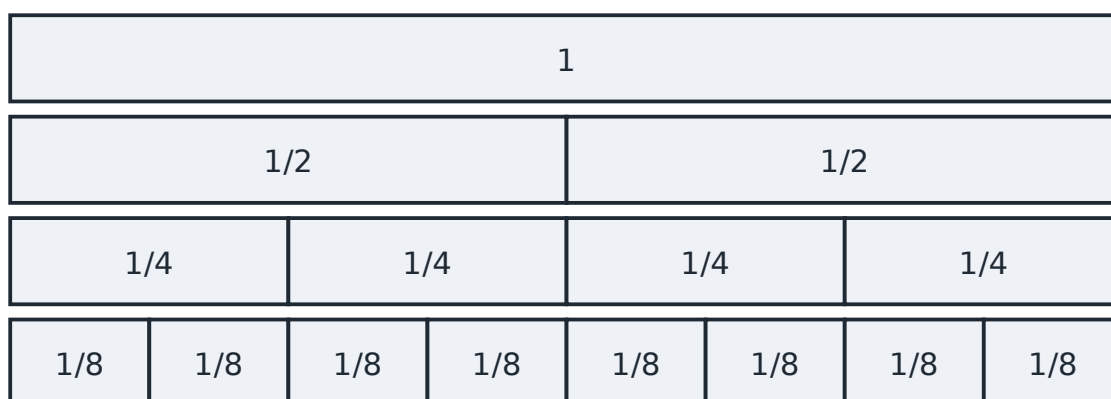
Extension & Challenge — Calculating with Number

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. $\frac{1}{2} + \frac{1}{8}$. On the wall, one half lines up with $\frac{4}{8}$. So $\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8}$.

Fraction strips



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

1 Use the fraction wall to write **three** fractions that are equal to $\frac{1}{2}$.

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

(a) $\frac{1}{2} + \frac{1}{4} =$ _____

(b) $\frac{3}{8} + \frac{1}{4} =$ _____

3 Subtract. Write each answer in its simplest form.

(a) $1 - \frac{5}{8} =$ _____

(b) $\frac{3}{4} - \frac{1}{8} =$ _____

4 Which is larger, $\frac{5}{8}$ or $\frac{3}{4}$? Use the fraction wall to justify your answer.

5 A pizza is cut into eighths. Mia eats $\frac{3}{8}$ and Sam eats $\frac{1}{4}$. What fraction of the pizza is left?

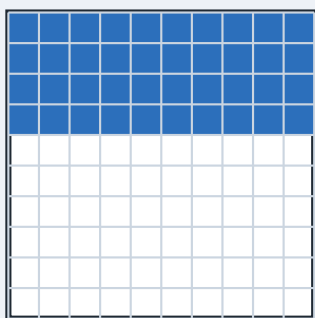
6 Prove it. Show, using the fraction wall, why $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{1}{2}$.

Part B — Decimals, Fractions & Percentages

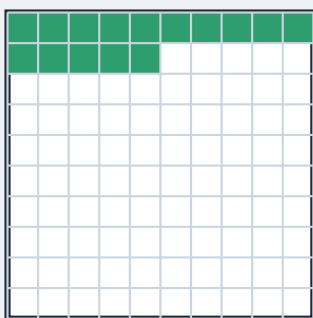
A hundredths grid has 100 small squares, so each shaded square is one hundredth: $0.01 = \frac{1}{100} = 1\%$. The same picture can be read as a decimal, a fraction *or* a percentage.

Worked example. A grid has 30 of its 100 squares shaded. That is 0.30 as a decimal, $\frac{30}{100} = \frac{3}{10}$ as a fraction, and 30% .

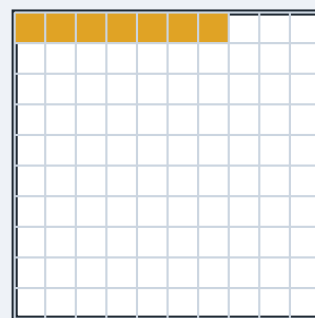
What decimal is shaded?



A



B



C

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) $0.4 = \underline{\hspace{2cm}} \text{ \%} = \underline{\hspace{2cm}} /10$

(b) $0.25 = \underline{\hspace{2cm}} /4$

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