

Draw it. Explain it.

01 Equivalent fractions

Shade one half of each equal-length bar. The first has 2 parts; the second has 4. Write a fraction for each shaded amount.

02 Explain the difference

Mia says $\frac{1}{3}$ and $\frac{1}{4}$ are the same because each has a 1 on top. Draw or explain why the size of the equal parts matters.

03 Missing angle

Two angles together make a straight line (180 degrees). One is 65 degrees. What is the other angle? Explain how you know.

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04 Perimeter and area

A rectangle is 6 cm long and 3 cm wide. Find its perimeter and its area. Include the correct units.

05 Same perimeter?

A 4 cm by 4 cm square and a 6 cm by 2 cm rectangle both have perimeter 16 cm. Do they have the same area? Show your calculation.

06 A useful check

A rectangle has area 24 square cm and one side is 4 cm. Find the other side, then its perimeter.

More than a number.

1. Equivalent fractions

Shade 1 of the 2 parts and 2 of the 4 parts. The shaded lengths match: $\frac{1}{2} = \frac{2}{4}$. Equal-sized wholes are essential to this comparison.

2. Size of the parts

If the wholes are equal, splitting one into 3 equal pieces makes larger pieces than splitting the other into 4. One third is larger than one fourth.

3. Missing angle

$180 - 65 = 115$ degrees. Check: $65 + 115 = 180$. Subtract from the whole straight angle, not from 90.

4. Rectangle

Perimeter = $6 + 3 + 6 + 3 = 18$ cm. Area = $6 \times 3 = 18$ square cm. The numbers happen to match; they measure different things.

5. Same perimeter, different area

The square has area $4 \times 4 = 16$ square cm. The rectangle has area $6 \times 2 = 12$ square cm. Equal perimeter does not imply equal area.

6. Reverse the calculation

24 divided by 4 = 6 cm for the other side. Perimeter = $4 + 6 + 4 + 6 = 20$ cm.

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