Decimals: more digits, more value?

1. Compare and explain

Which is greater: 0.3 or 0.25? Explain using tenths and hundredths. You may draw two equal-sized wholes.

2. Test your idea

Compare 0.5 and 0.75; then compare 4.08 and 4.8. Write a reason for each, not just a symbol.

3. Agree or disagree?

“0.60 is greater than 0.6 because it has more digits.” Explain. Then find a decimal between 0.25 and 0.3.

Teacher notes and possible answers

Answers and reasoning

1: 0.3 is 30 hundredths, so it is greater than 25 hundredths. 2: 0.75 is greater than 0.5 (75 > 50 hundredths); 4.8 is greater than 4.08 (4 wholes and 80 hundredths > 4 wholes and 8 hundredths). 3: Disagree: 0.6 = 0.60. Examples between 0.25 and 0.3 include 0.26, 0.27, 0.28 and 0.29; more are possible, including 0.275.

Teach the value, not the digit count

Prerequisite: tenths and hundredths as parts of one whole. Allow 15 minutes. Use same-sized whole grids or a number line labelled 0, 0.1, 0.2 and so on. A grid for 0.3 must show 30 of 100 equal parts. Do not compare diagrams with different-sized wholes.

A response worth investigating

If a pupil chooses 0.25 because 25 > 3, ask how many hundredths are in three tenths. If they always choose the shorter decimal, revisit 0.5 versus 0.75. Neither “longer is larger” nor “shorter is larger” works.

Support, stretch and revisit

Use just 0.3 and 0.25 first; model with strips and oral explanations. For stretch, find two different decimals between the pair and justify them. Revisit with 0.4 and 0.35 (0.4 is greater), then 0.4 and 0.45 (0.45 is greater). One answer is a teaching clue, not a diagnosis.

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