

# Division in your head – factors, splitting and short division

Upcoming episode

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Division feels harder than the other operations, but it is the method that is the problem – not the sum. A walk-through of factorising, splitting, short division, the divisibility rules for 3, 4, 7, 8, 9 and 11, and what to do when it does not come out even.

## MAIN TOPICS

- Why division feels harder than it is
- Split the divisor into factors
- Multiply instead of dividing
- Split the number into friendly pieces
- Short division, left to right
- The divisibility rules
- The rule for 7 and the rule for 11
- When it does not come out even
- The fractions worth knowing as percentages

## QUESTIONS THIS EPISODE ANSWERS

- Why is division harder to do in your head than multiplication?
- How do you divide by 8 without calculating?
- How do you divide quickly by 5, 25 and 50?
- What is short division?
- How can you see whether a number divides by 3, 4, 8 or 9?
- Is there a rule for 7?
- What is the rule for 11?
- What do you do when the division does not come out even?
- Which fractions should you know as percentages?

## KEY POINTS

- Division feels hardest because the method from school was designed for paper, not for your head.
- Split the divisor into factors: dividing by 8 is halving three times.
- Dividing by 5 is multiplying by 2 and moving the decimal point. Dividing by 25 is multiplying by 4.
- Split the number into pieces that are easy to divide, then add the answers.
- Short division runs left to right and holds only one remainder at a time.
- The rules for 3, 4, 8 and 9 look only at the digits, not at the number.
- There is a rule for 7: drop the last digit and subtract twice that digit from the rest.

- The rule for 11 is the alternating digit sum – plus, minus, plus.
- Knowing that an eighth is 12.5 per cent saves you half the arithmetic.

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