

What are examiners looking for?

Q1

Harry calculates four different amounts.

- A  $\frac{1}{5}$  of 60
- B 90 shared into three equal groups
- C  $\frac{2}{3}$  of 18
- D A quarter of 100

Which of the four calculations is the odd one out? Explain your answer.

**Accept any reasonable answers.**

**For example:**

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***C because multiplication is needed as well as division to find the answer.***

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***D because all the other answers are multiples of 6.***

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1 mark

Why are we asking this question?

This question has been designed to assess children's ability to find fractions of numbers. It is an open-ended question in the sense that, if children use appropriate reasoning, there are several possible answers.

What common errors do we expect to see?

**Some children may attempt to answer the question without finding any of the answers.** For example, they may suggest that calculation B is the odd one out because all the others involve fractions, or that calculation C is the odd one out because the others involve multiples of 10. Whilst this is not necessarily a wrong answer, it does not display a depth of reasoning.

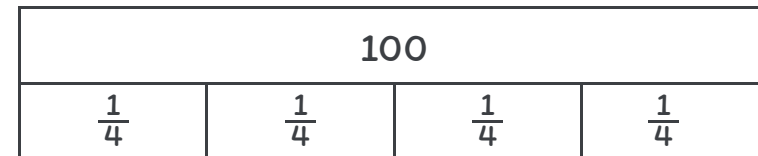
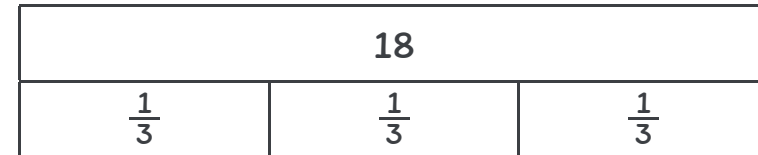
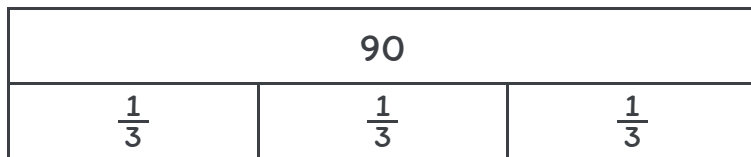
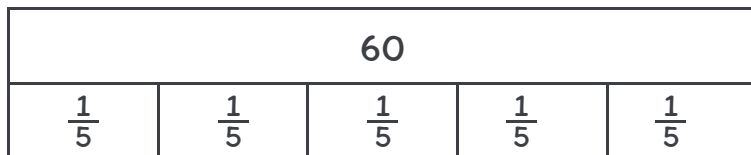
**Some children may struggle to find fractions of quantities.** They may be able to solve calculation B by using division, but not be aware how to solve the others. For instance, they may attempt to find out the number of  $\frac{1}{5}$ s that there are in 60 ( $60 \div \frac{1}{5}$  is different from  $\frac{1}{5}$  of 60).

How to encourage children to solve this question

Begin by encouraging children to find the answer to each problem, rather than attempting to give an answer without calculating anything.

Perhaps the clearest way to visualise each calculation is through the use of bar models, supporting children as needed to construct a bar model.

Encourage children to sketch quick bar models to represent what is being asked in each question. They should be able to see that the way to find each problem is through division (and, in the case of calculation C, addition or multiplication too).



Once children have calculated each answer, encourage them to compare their answers, their methods and so on to decide on an ‘odd one out’ based on mathematical reasoning.