

# Discussion Problems

## Step 15: Reason from Known Facts

### National Curriculum Objectives:

Mathematics Year 6: (6C8) [Solve problems involving addition, subtraction, multiplication and division](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

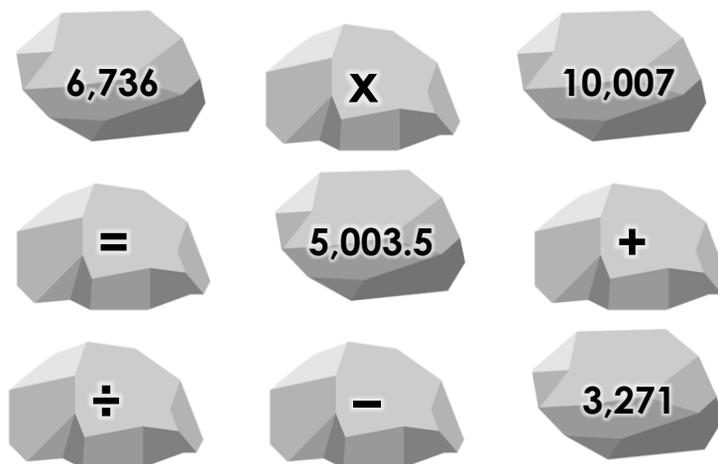
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Four Operations](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Reason from Known Facts

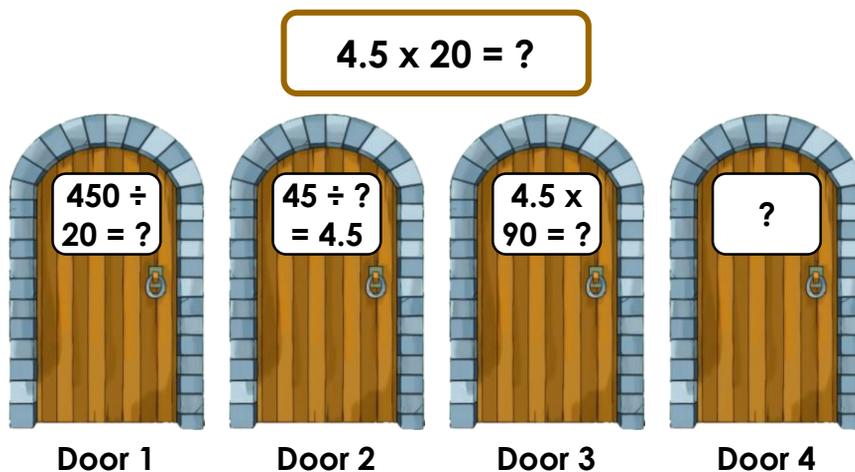
1. Vlast the Viking is using related facts to calculate how many enemy warriors there will be in an upcoming battle, but his runestones have become mixed up!



Work out how many enemy warriors there could be by investigating the different calculations that Vlast could have created using the runestones above.

Which runestones will not help Vlast?

2. Sir Wallace is using the multiplication fact shown below to help him escape a trap!

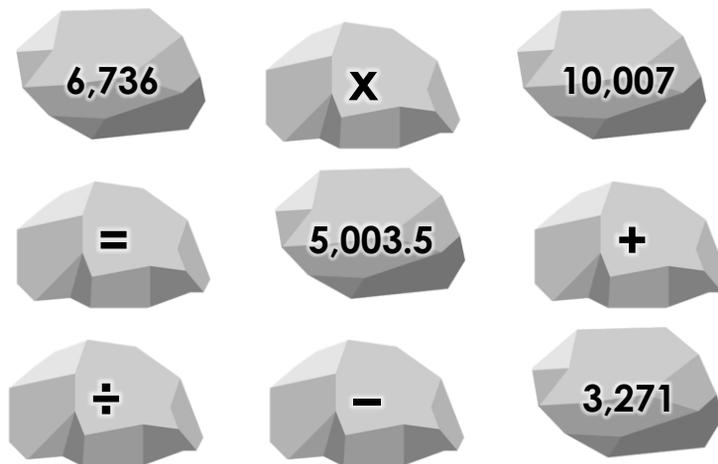


If the door that leads to safety is related to the multiplication fact above, which door should Sir Wallace choose?

The calculation on the fourth door is hidden. Explore the different statements that could be written on this door if it also leads to safety.

## Reason from Known Facts

1. Vlast the Viking is using related facts to calculate how many enemy warriors there will be in an upcoming battle, but his runestones have become mixed up!



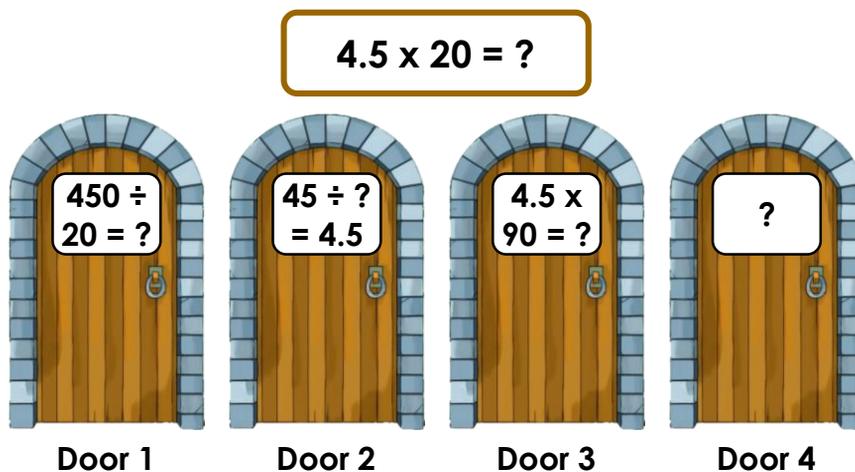
Work out how many enemy warriors there could be by investigating the different calculations that Vlast could have created using the runestones above.

**Various answers, for example: There could be 10,007 or 6,736 enemy warriors as the runestones show inverse operations ( $6,736 + 3,271 = 10,007$  and  $10,007 - 3,271 = 6,736$ ).** Which runestones will not help Vlast?

**The runestones with 5,003.5, x and ÷ written on will not help Vlast as they can not be used to create any related number facts using the rest of the stones.**

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2. Sir Wallace is using the multiplication fact shown below to help him escape a trap!



If the door that leads to safety is related to the multiplication fact above, which door should Sir Wallace choose?

**Door 2**

The calculation on the fourth door is hidden. Explore the different statements that could be written on this door if it also leads to safety.

**Various answers, for example:  $90 \times 4.5 = 405$ ;  $45 \div 10 = 4.5$ ;  $405 \div 90 = 4.5$**

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