

Discussion Problems

Step 5: Divide Decimals By Integers

National Curriculum Objectives:

Mathematics Year 6: (6F9a) [Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places](#)

Mathematics Year 6: (6F9c) [Use written division methods in cases where the answer has up to two decimal places](#)

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 Decimals](#) resources.

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

Divide Decimals by Integers

1. James is trying to solve a puzzle in an escape room.

He has found several keys with different division calculations on each one.

He says,



I have worked out that I will need a combination of 3 different keys. When the sum of all 3 calculations are added together, a number with 2 decimal places between 40 and 50 will allow me to escape.

Key 1



$56.6 \div 5$

Key 2



$25.2 \div 4$

Key 3



$84.63 \div 3$

Key 4



$62.9 \div 5$

Key 5



$45.32 \div 2$

Key 6



$82.56 \div 8$

Key 7



$46.2 \div 6$

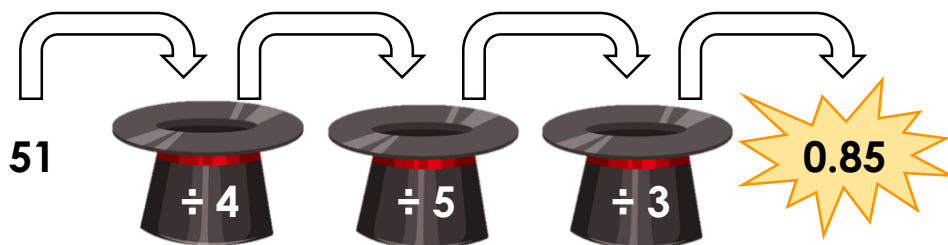
What could this number be? Investigate which combination of keys James could use in order to solve the puzzle. Explore different possible solutions.

DP

2. Marvin the Magician has 3 magical hats that divide anything placed in them by the 1-digit number shown on the front.

He wants to find 2-digit numbers that, when placed in his hats in succession, create a final number that is between 0 and 5 with 2 decimal places.

He has already found one 2-digit number that works:



Explore other possible numbers that Marvin could put in his hats.

Investigate the outcomes if Marvin changed the order of his hats.

DP

Divide Decimals by Integers

1. James is trying to solve a puzzle in an escape room.

He has found several keys with different division calculations on each one.

He says,



I have worked out that I will need a combination of 3 different keys. When the sum of all 3 calculations are added together, a number with 2 decimal places between 40 and 50 will allow me to escape.

Key 1



$$56.6 \div 5$$

Key 2



$$25.2 \div 4$$

Key 3



$$84.63 \div 3$$

Key 4



$$62.9 \div 5$$

Key 5



$$45.32 \div 2$$

Key 6



$$82.56 \div 8$$

Key 7



$$46.2 \div 6$$

What could this number be? Investigate which combination of keys James could use in order to solve the puzzle. Explore different possible solutions.

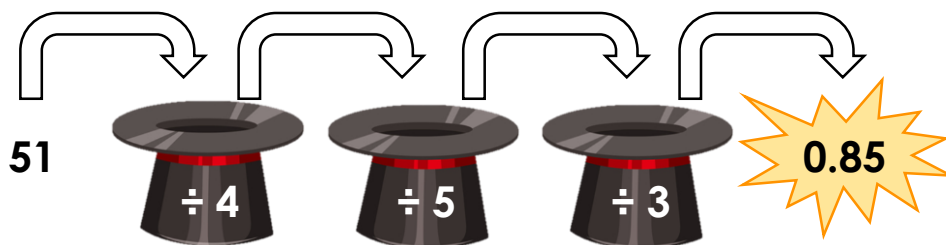
Various answers, for example: His number could be 47.23 if he chose Key 1, Key 3 and Key 7, as $11.32 + 28.21 + 7.7 = 47.23$.

DP

2. Marvin the Magician has 3 magical hats that divide anything placed in them by the 1-digit number shown on the front.

He wants to find 2-digit numbers that, when placed in his hats in succession, create a final number that is between 0 and 5 with 2 decimal places.

He has already found one 2-digit number that works:



Explore other possible numbers that Marvin could put in his hats.

Various answers, for example: 45; $45 \div 4 = 11.25$; $11.25 \div 5 = 2.25$; $2.25 \div 3 = 0.75$

Investigate the outcomes if Marvin changed the order of his hats.

Various answers, for example: 51; $51 \div 5 = 10.2$; $10.2 \div 4 = 2.55$; $2.55 \div 3 = 0.85$. No matter which order the hats are in, the answer should always be the same.

DP