

Discussion Problems

Step 10: Round Within a Million

National Curriculum Objectives:

Mathematics Year 5: (5N2) [Read, write, order and compare numbers to at least 1,000,000](#)
Mathematics Year 5: (5N3a) [Determine the value of each digit in numbers up to 1,000,000](#)
Mathematics Year 5: (5N4) [Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000](#)

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.

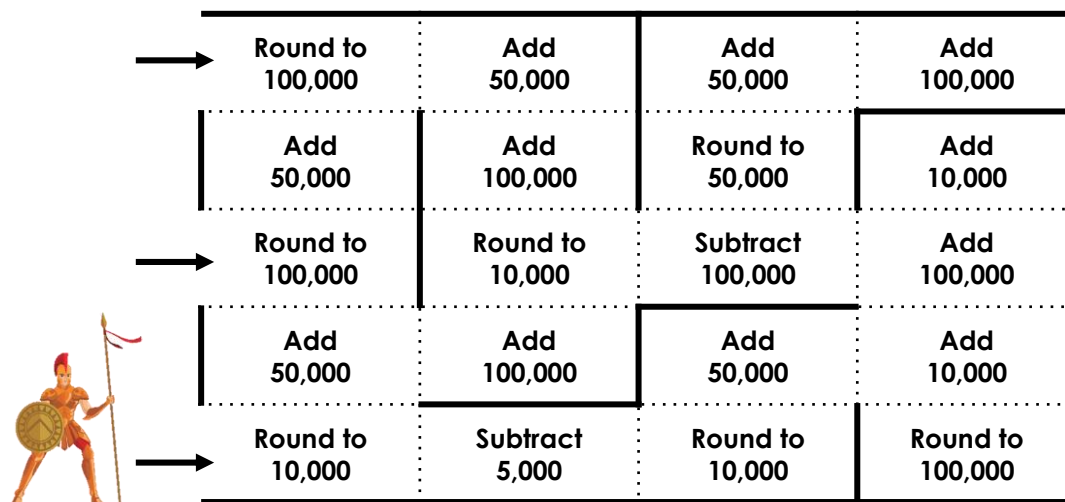
More [Year 5 Place Value](#) resources.

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

Round Within a Million

1. Hector the Heroic enters a maze in order to hide from a deadly dragon!

He enters the maze with a starting number of 365,189. In order to avoid alerting the dragon, he must reach a number of 600,000 or above before leaving the maze.



Explore the different possible routes Hector could take in order to reach his target number and escape. He can enter the maze from any of the entrances around it.

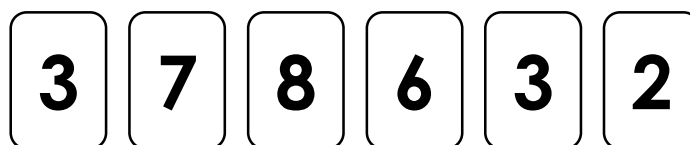
DP

2. Matt and Kelly are playing a game. They take it in turns to pick digit cards from a pack, until they each have 6 digit cards.

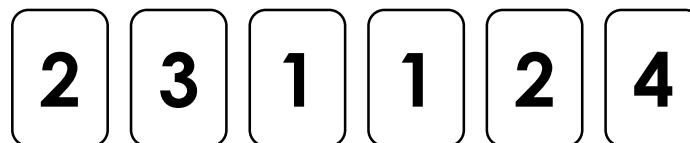
Their cards are shown below:



Matt



Kelly



When rounded to the nearest 100,000, they have a difference of 200,000.

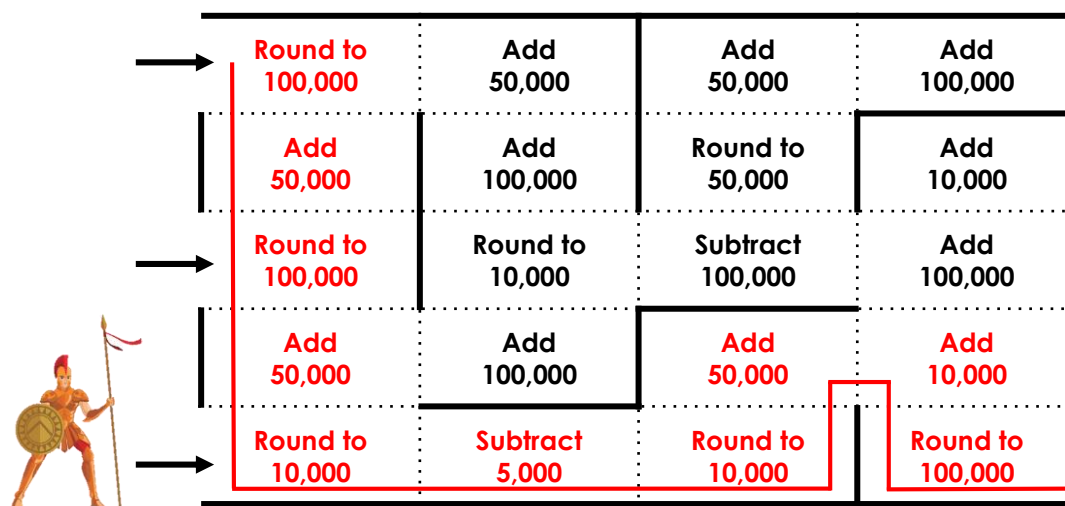
Investigate how many different ways they could order their digit cards so that they still have a difference of 200,000 after rounding.

DP

Round Within a Million

1. Hector the Heroic enters a maze in order to hide from a deadly dragon!

He enters the maze with a starting number of 365,189. In order to avoid alerting the dragon, he must reach a number of 600,000 or above before leaving the maze.



Explore the different possible routes Hector could take in order to reach his target number and escape. He can enter the maze from any of the entrances around it.

Various answers, for example (above): Hector could enter from the top left and exit from the bottom right. He would end up with a number of exactly 600,000.

DP

2. Matt and Kelly are playing a game. They take it in turns to pick digit cards from a pack, until they each have 6 digit cards.

Their cards are shown below:

3

7

8

6

3

2

Matt

2

3

1

1

2

4

Kelly

When rounded to the nearest 100,000, they have a difference of 200,000.

Investigate how many different ways they could order their digit cards so that they still have a difference of 200,000 after rounding.

Various answers, for example: Matt could have 233,768; Kelly could have 421,231.

DP