Diving into Mastery

Inverse Operations (Addition and Subtraction)

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

Diving

Deeper

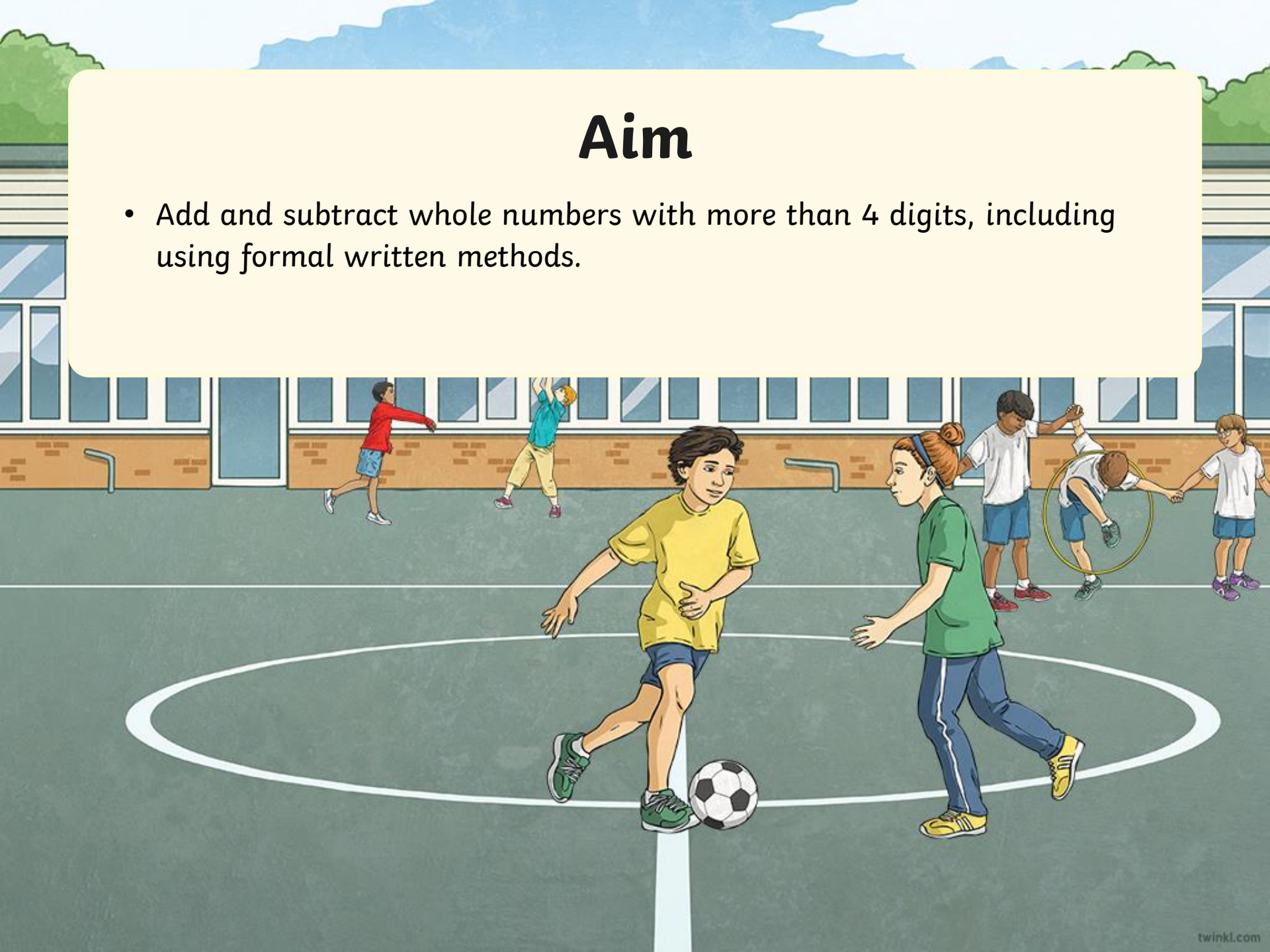
Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Add and subtract whole numbers with more than 4 digits, including using formal written methods.



Inverse Operations (Addition and Subtraction)

Diving

Write all the other calculations you can make using these three numbers.

9862 + 23 104 = 32 966

32 966 – 9862 = 23 104

32 966 – 23 104 = 9862

23 104 + 9862 = 32 966

Inverse Operations (Addition and Subtraction)

Diving

Can you work out the number in each of these?

a) I am thinking of a number. I add 7852 and then subtract 2607. I now have 32 451. What is my number?

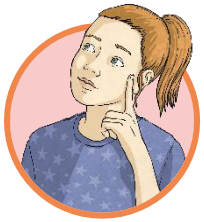
27 206 (32 451 + 2607 = 35 058, 35 058 – 7852 = 27 206)

b) I am thinking of a number. I subtract 19 657 and then add 26 205. I now have 61 305. What is my number?

54 757 (61 305 – 26 205 = 35 100, 35 100 + 19 657 = 54 757)

c) I am thinking of a number. I add 32 981, subtract 6305 and then add 25 154. I now have 56 287. What is my number?

4457 (56 287 – 25 154 = 31 133, 31 133 + 6305 = 37 438, 37 438 – 32 981 = 4457)



Inverse Operations (Addition and Subtraction) — Deeper

Tony has written the different calculations that can be made from each original calculation.

He has made some mistakes. Can you find them all?

32 255 + 25 251 = 57 506	74 258 – 34 102 = 40 156	6721 + 25 973 = 32 694
25 251 + 32 255 = 57 506	40 156 + 34 102 = 74 258	**25 973 + 32 694 = 6721**
57 506 – 32 255 = 25 251	34 102 + 40 156 = 74 258	32 694 – 25 973 = 6721
32 255 – 57 506 = 25 251	**34 102 – 74 258 = 40 156**	32 694 – 6721 = 25 973

Inverse Operations (Addition and Subtraction)

Deeper

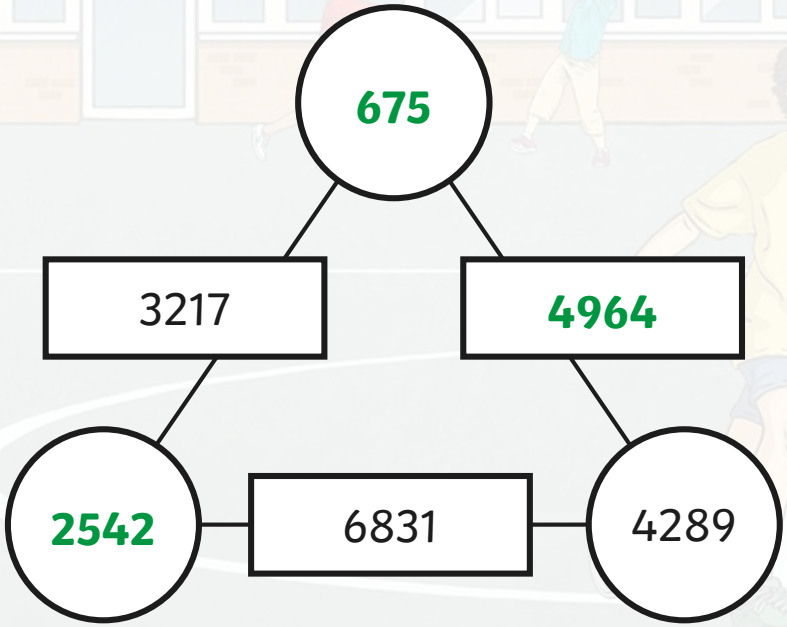
Tony has written the different calculations that can be made from each original calculation.

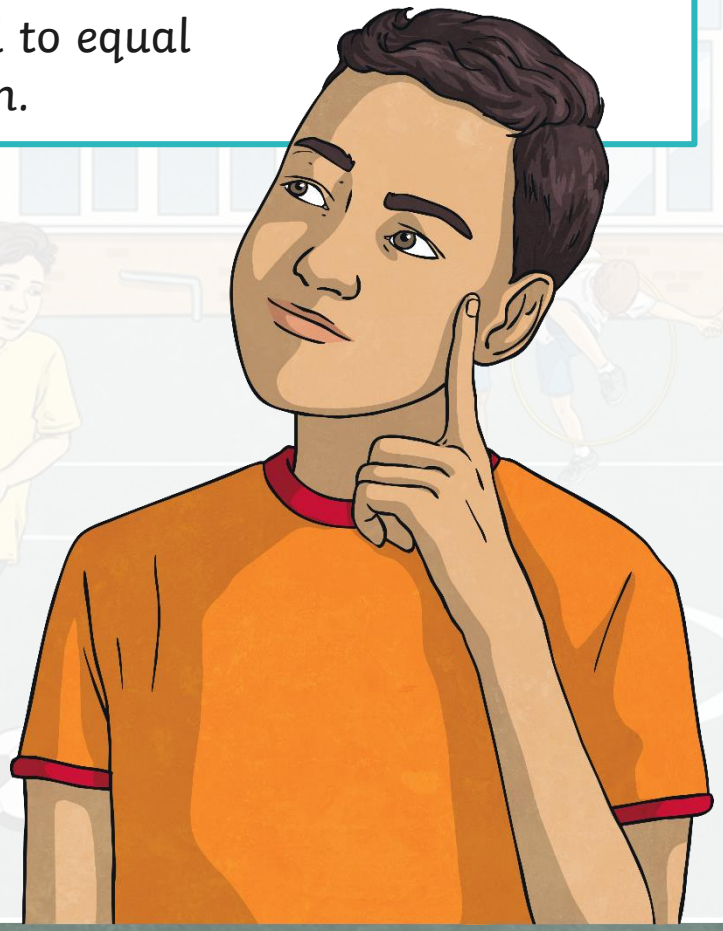
What should Tony have written?

32 255 + 25 251 = 57 506	74 258 – 34 102 = 40 156	6721 + 25 973 = 32 694
25 251 + 32 255 = 57 506	40 156 + 34 102 = 74 258	**25 973 + 6721 = 32 694**
57 506 – 32 255 = 25 251	34 102 + 40 156 = 74 258	32 694 – 25 973 = 6721
57 506 – 25 251 = 32 255	**74 258 – 40 156 = 34 102**	32 694 – 6721 = 25 973

Can you fill in the missing numbers in this arithmagon?

The two corner numbers need to be added to equal the number in the rectangle between them.

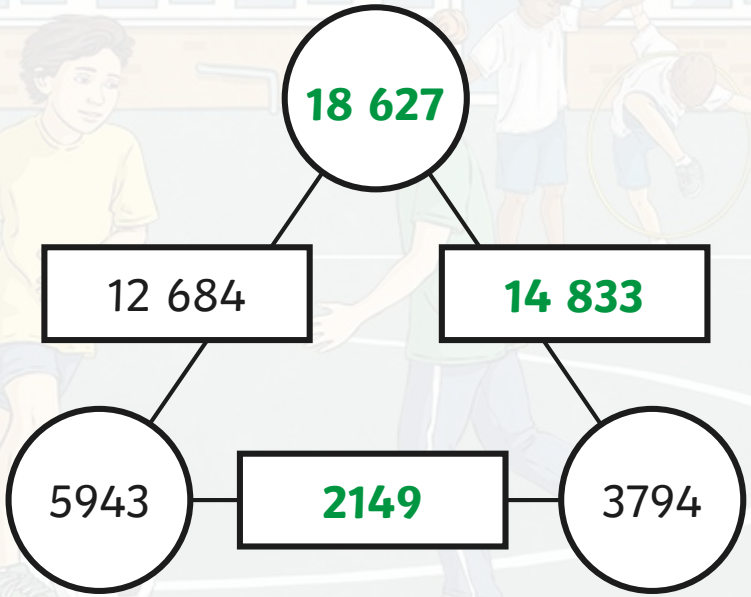




Inverse Operations (Addition and Subtraction) | Deepest

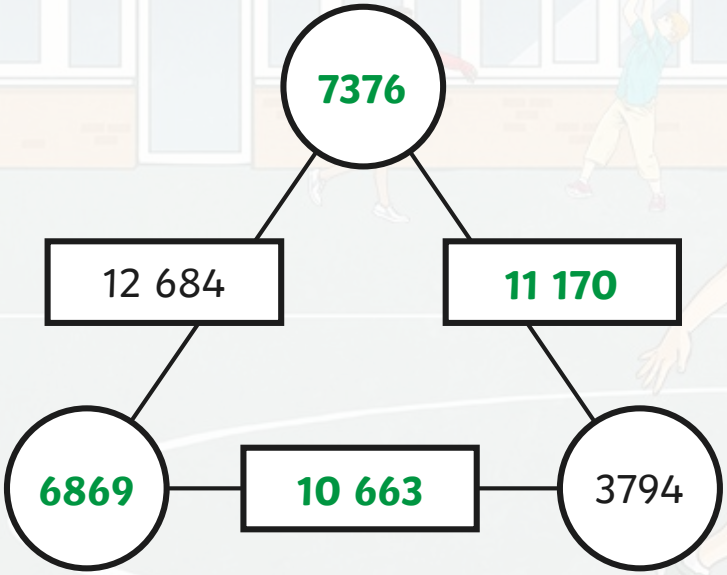
Can you find the missing numbers in this arithmagon?

The number in the rectangle is found by finding the difference between the two corner numbers either side of it.

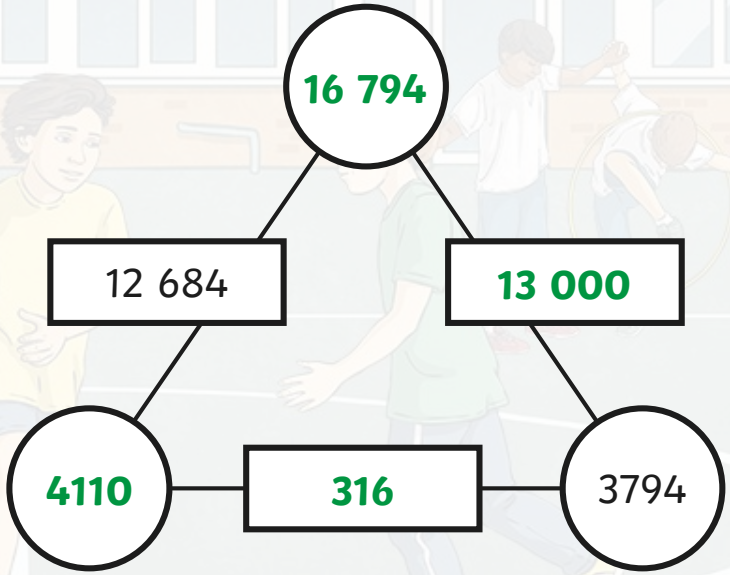


What could the numbers be to complete this arithmagon?

Find 2 possible sets of numbers using addition or difference.



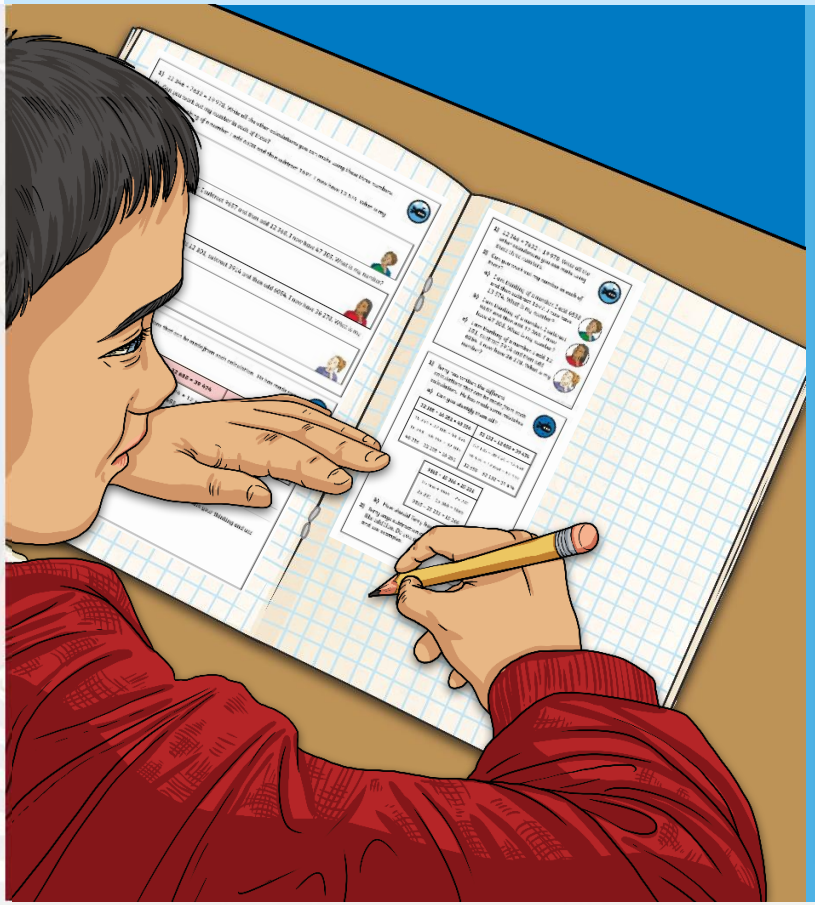
(using addition)

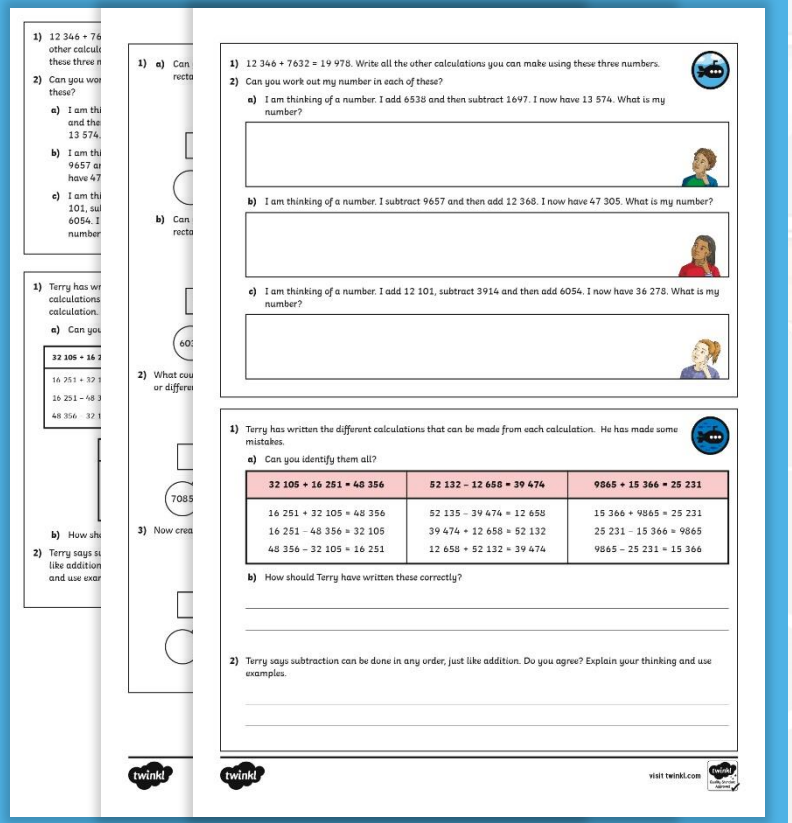


(using difference)

Inverse Operations (Addition and Subtraction)

Dive in by completing your own activity!





1) 12 346 + 7632 = 19 978. Write all the other calculations you can make using these three numbers.

2) Can you work out my number in each of these?

a) I am thinking of a number. I add 6538 and then subtract 1697. I now have 13 574. What is my number?

b) I am thinking of a number. I subtract 9657 and then add 12 368. I now have 47 305. What is my number?

c) I am thinking of a number. I add 12 101, subtract 3914 and then add 6054. I now have 36 278. What is my number?

1) Terry has written the different calculations that can be made from each calculation. He has made some mistakes.

a) Can you identify them all?

32 105 + 16 251 = 48 356	52 132 – 12 658 = 39 474	9865 + 15 366 = 25 231
16 251 + 32 105 = 48 356	52 135 – 39 474 = 12 658	15 366 + 9865 = 25 231
16 251 – 48 356 = 32 105	39 474 + 12 658 = 52 132	25 231 – 15 366 = 9865
48 356 – 32 105 = 16 251	12 658 + 52 132 = 39 474	9865 – 25 231 = 15 366

b) How should Terry have written these correctly?

2) Terry says subtraction can be done in any order, just like addition. Do you agree? Explain your thinking and use examples.

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National Curriculum Aim

Add and subtract whole numbers with more than 4 digits, including using formal written methods.

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