

Reasoning and Problem Solving

Step 1: 1s, 10s, 100s, 1,000s

National Curriculum Objectives:

Mathematics Year 4: (4C2) [Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use addition/subtraction of 1s, 10s, 100s or 1,000s to calculate a start number. No exchanging.

Expected Use addition/subtraction of 1s, 10s, 100s and 1,000s to calculate a start number. Some exchanging in one column.

Greater Depth Use addition/subtraction of 1s, 10s, 100s and 1,000s to calculate a start number. Some exchanging in two columns.

Questions 2, 5 and 8 (Reasoning)

Developing Find the mistake in the addition/subtraction calculation and explain the error when calculating 4-digit numbers.

Expected Find the mistake in the addition/subtraction calculation and explain the error when calculating 4-digit numbers (including some exchange in one column).

Greater Depth Find the mistake in the addition/subtraction calculation and explain the error when calculating 4-digit numbers, identifying when exchanging is needed (including exchanging in two columns).

Questions 3, 6 and 9 (Reasoning)

Developing Complete a sequence and explain what the sequence is increasing by each time and explain how they know. Addition of 1s, 10s, 100s or 1,000s with no exchanging.

Expected Complete a sequence and explain what the sequence is increasing/decreasing by each time and explain how they know. Addition/subtraction of 1s, 10s, 100s and 1,000s with some exchanging in one column.

Greater Depth Complete a sequence and explain what the sequence is increasing/decreasing by each time and explain how they know. Addition/subtraction of 1s, 10s, 100s and 1,000s with some exchanging in two columns.

More [Year 3 and Year 4 Addition and Subtraction](#) resources.

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

1a. Chuan thinks of a number.

I add 1,000 to it and subtract 300 from it. My answer is 8,428.



Chuan

What number did he start with?



4 PS

1b. Hafsa thinks of a number.

I subtract 200 from it and add 20. My answer is 2,539.



Hafsa

What number did she start with?



4 PS

2a. Complete the sequence.

6,391	6,491		6,691	
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What is the sequence increasing by each time?

Explain how you know.



4 R

2b. Complete the sequence.

1,847	2,847			5,847
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What is the sequence increasing by each time?

Explain how you know.



4 R

3a. Gabriel says,



Gabriel

When I add 200 to 3,552, I get 5,552.

Correct Gabriel's answer and explain his mistake.



4 R

3b. Lucy says,



Lucy

When I subtract 50 from 4,659, I get 4,654.

Correct Lucy's answer and explain her mistake.



4 R

4a. Josh thinks of a number.

I add 1,000 to it, subtract 50, add 5, then subtract 400. My answer is 6,497.



Josh

What number did he start with?



4 PS

4b. Sinead thinks of a number.

I add 3,000 to it, subtract 70, add 4, then subtract 200. My answer is 5,099.



Sinead

What number did she start with?



4 PS

5a. Complete the sequence.

1,040	1,440			2,640
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What is the sequence increasing by each time?

Explain how you know.



4 R

5b. Complete the sequence.

6,893	6,863			6,773
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What is the sequence decreasing by each time?

Explain how you know.



4 R

6a. Cian says,



Cian

When I subtract 80 from 3,150, I get 3,230.

Correct Cian's answer and explain his mistake.



4 R

6b. Kelly says,



Kelly

When I add 600 to 2,799, I get 8,799.

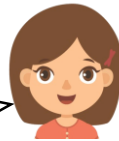
Correct Kelly's answer and explain her mistake.



4 R

7a. Anna thinks of a number.

I add 1,000 to it, subtract 30, add 8, then subtract 200. My answer is 2,925.



Anna

What number did she start with?



4 PS

7b. Jan thinks of a number.

I add 2,000 to it, subtract 10, add 3, then subtract 200. My answer is 2,901.



Jan

What number did he start with?



4 PS

8a. Complete the sequence.

8,996 9,156 9,316

What is the sequence increasing by each time?

Explain how you know.



4 R

8b. Complete the sequence.

5,412 5,394 5,376

What is the sequence decreasing by each time?

Explain how you know.



4 R

9a. Haider says,



Haider

When I subtract 700 from 5,352, then add 50, I get 4,652.

Correct Haider's answer and explain his mistake.



4 R

9b. Daniella says,



Daniella

When I add 60 to 4,673, then subtract 800 I get 3,813.

Correct Daniella's answer and explain her mistake.



4 R

Reasoning and Problem Solving

1s, 10s, 100s, 1,000s

Developing

1a. 7,728

2a. 6,591, 6,791 The sequence is increasing in steps of 100, because only the hundreds digit increases by 1 each time.

3a. 3,752. Gabriel has added 2,000, not 200.

Expected

4a. 5,942

5a. 1,840, 2,240 The sequence is increasing in steps of 400, because $1,040 + 400 = 1,440$.

6a. 3,070. Cian has added 80, not subtracted 80.

Greater Depth

7a. 2,147

8a. 9,076, 9,236 The sequence is increasing in steps of 80, because $9,156 - 8,996 = 160 \div 2 = 80$.

9a. 4,702. Haider has subtracted 700 but has not added 50.

Reasoning and Problem Solving

1s, 10s, 100s, 1,000s

Developing

1b. 2,719

2b. 3,847, 4,847 The sequence is increasing in steps of 1,000, because only the thousands digit increases by 1 each time.

3b. 4,609. Lucy has subtracted 5, not 50.

Expected

4b. 2,365

5b. 6,833, 6,803 The sequence is decreasing in steps of 30, because $6,893 - 30 = 6,863$.

6b. 3,399. Kelly has added 6,000, not 60.

Greater Depth

7b. 1,108

8b. 5,403, 5,385 The sequence is decreasing in steps of 9, because $5,412 - 5,394 = 18 \div 2 = 9$.

9b. 3,933. Daniella has subtracted 60 and 800, rather than adding 60 and subtracting 800.