

# Reasoning and Problem Solving

## Step 12: Count in 25s

### National Curriculum Objectives:

Mathematics Year 4: (4N1) [Count in multiples of 6, 7, 9, 25 and 1000](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Determine if statements are true or false using knowledge of counting forwards in 25s from multiples of 25.

**Expected** Determine if statements are true or false using knowledge of counting forwards and backwards in 25s from multiples of 25.

**Greater Depth** Determine if statements are true or false using knowledge of counting forwards and backwards from any number in 25s.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Find the third number in a sequence from one given number when counting forwards in 25s. 2 and 3-digit multiples of 25 represented using place value counters.

**Expected** Find all possible combinations of a 3 number sequence from one given number when counting in 25s. 3 and 4-digit non-multiples of 25 represented in a place value grid.

**Greater Depth** Find all possible combinations of a 3 number sequence from one given number when counting in 25s. 3 and 4-digit non-multiples of 25 displayed using mixed representations.

Questions 3, 6 and 9 (Reasoning)

**Developing** Use knowledge of counting forwards in 25s from 0 to solve problems in context. 2 and 3-digit multiples of 25.

**Expected** Use knowledge of counting forwards and backwards in 25s to solve problems in context. 3-digit non-multiples of 25.

**Greater Depth** Use knowledge of counting forwards and backwards in 25s to solve problems in context. 3 and 4-digit non-multiples of 25 using some mixed representation.

More [Year 4 Place Value](#) resources.

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## Count in 25s

1a. Is each statement true or false?  
Explain why.



Becky

When counting in 25s from 50, my next number will be 75.

When counting in 25s from 0, I will always say a multiple of 100.



Chen



PS

## Count in 25s

1b. Is each statement true or false?  
Explain why.



Aisha

When counting in 25s from 0, every second number will be a multiple of 10.

When counting in 25s from 75, I will reach 195.

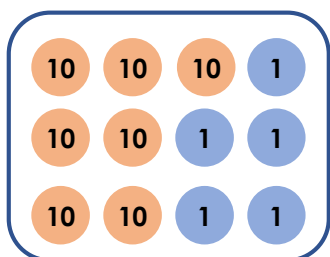


Ben



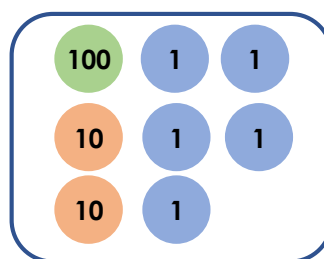
PS

2a. There are 3 numbers in a sequence. The first one is represented below. What would the third one be?



PS

2b. There are 3 numbers in a sequence. The first one is represented below. What would the third one be?



PS

3a. Seb says,



Seb

I have 3 boxes of pens. Each box has 25 pens. I have 75 pens.

Is he correct? Prove it.



R

3b. Cian says,



Cian

I have 100 sweets. I count them in to bags of 25. I will have three bags.

Is he correct? Prove it.



R

## Count in 25s

4a. Is each statement true or false? Explain why.



Isabel

All multiples of 25 are multiples of 50.

All multiples of 25 are multiples of 100.



Alison

All multiples of 50 are multiples of 25.



Hugh

PS

## Count in 25s

4b. Is each statement true or false? Explain why.



Nick

All multiples of 25 have a 0 or 5 in the ones column.

When I count in 25s from 250, I will reach 305.



Ellie

All multiples of 100 are multiples of 25.



Esme

PS

5a. There are 3 numbers in a sequence. One of them is represented below. What could the other 2 numbers be? Write down all possible combinations.

H	T	O
● ●	●	●
● ●	●	●
●	●	●
●		●
●		●



PS

5b. There are 3 numbers in a sequence. One of them is represented below. What could the other 2 numbers be? Write down all possible combinations.

Th	H	T	O
●	●	● ●	● ●
	●	● ●	● ●
		● ●	● ●
		●	●



PS

6a. Sean says,



Sean

There are 25 counters in each bag and 8 bags in a box. That means there are 200 counters in each box.

Is he correct? Prove it.



R

6b. Gabriel says,



Gabriel

There are 25 strawberries in a punnet and 12 punnets in a tray. That means there are 300 strawberries in each tray.

Is he correct? Prove it.



R

## Count in 25s

7a. Is each statement true or false?  
Explain why.



Lauren

If 25 is a factor of 100, it must be a factor of 1,000.

1,155 is the next number in the sequence: 1,055, 1,080, 1,105...



Penny

The 5<sup>th</sup> multiple of 25 after 1,220 is 1,355.



Caius

PS

## Count in 25s

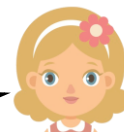
7b. Is each statement true or false?  
Explain why.



Dev

All multiples of 25 are divisible exactly by 10.

985 is the next number in the sequence: 1,080, 1,055, 1,030, 1,005...



Amy

1,250 is a multiple of 25 therefore 12,250 must be.



Alice

PS

8a. There are 3 numbers in a sequence. One of them is represented below. What could the other 2 numbers be? Write down all possible combinations.

1,000 1,000 1,000

Four hundred and XV



PS

8b. There are 3 numbers in a sequence. One of them is represented below. What could the other 2 numbers be? Write down all possible combinations.

£764



PS

9a. Tom says,



Tom

I have 1,000 marbles to put into nets of 25. There will be 40 nets.

Is he correct? Prove it.



R

9b. Harry says,



Harry

There are 14 levels in an office block. Half of the levels have 25 offices. There are 175 offices on those levels.

Is he correct? Prove it.



R

## Reasoning and Problem Solving Count in 25s

### Developing

1a. Becky's statement is true,  $50 + 25 = 75$ .  
Chen's statement is statement is true,  $4 \times 25 = 100$  so other multiples of 100 will appear in the sequence.

2a. 125

3a. Seb is correct.  $25 \times 3 = 75$

### Expected

4a. Isabel's statement is false, not all multiples of 25 are multiples of 50 e.g. 75.  
Alison's statement is false, not all multiples of 25 are multiples of 100. Ben's statement is true, 50 is a multiple of 25 as 25 goes into 50 exactly.

5a. 685 and 710; 710 and 760; 760 and 785

6a. Sean is correct.  $25 \times 8 = 200$

### Greater Depth

7a. Lauren's statement is true,  $10 \times 100 = 1,000$ . Penny's statement is false, it is 1,130.  
Caius's statement is false,  $1,220 + 125 = 1,345$ .

8a. 3,365 and 3,390; 3,390 and 3,440; 3,440 and 3,465

9a. Tom is correct,  $4 \times 25 = 100$  so  $40 \times 25 = 1,000$

## Reasoning and Problem Solving Count in 25s

### Developing

1b. Aisha's statement is true, every 2<sup>nd</sup> number ends in 0 and is a multiple of 10.  
Ben's statement is false, he will reach 200. 195 is not a multiple of 25.

2b. 175

3b. Cian is incorrect.  $25 \times 4 = 100$  so he would have to have 4 bags.

### Expected

4b. Nick's statement is true, all multiples of 25 end in a 0 or 5. Ellie's statement is false, she will reach 300. Esme's statement is true, 100 is a multiple of 25 as 25 goes into 100 exactly.

5b. 1,195 and 1,220; 1,220 and 1,270; 1,270 and 1,295

6b. Gabriel is correct.  $25 \times 12 = 300$

### Greater Depth

7b. Dev's statement is false, numbers that divide exactly by 10 end in a 0 and some multiples of 25 end in 5 e.g. 75. Amy's statement is false,  $1,005 - 25 = 980$ . Alice's statement is true, 50 is a multiple of 25 so any number ending in 50 is also a multiple of 25.

8b. £714 and £739; £739 and £789; £789 and £814.

9b. Harry is correct, half of the levels = 7 and  $7 \times 25 = 175$ .