



# Maths Accelerator Centre

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## P4 Problem Sums – Mini Lesson

### Term 1 Lesson 3

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Using the **Working Backwards** strategy and **Model Drawing** (often called the Bar Model method) is a fantastic way to visualize how quantities shift. Instead of guessing, we look at the final state of the problem and reverse the actions to find the starting point.

What is the "Working Backwards" Strategy?

In math, working backwards involves starting from the **end result** and performing the **inverse operations** for each step to return to the original value.

- If the problem says someone "gave away" (subtraction), we **add** it back.
  - If the problem says someone "received" (addition), we **subtract** it.
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Step 1: Draw the "After" Model

First, we look at the final situation: Betty has 3 times as many stickers as Alex.

In this model, we see a total of **4 equal units**.

- **Alex's final amount:** 1 unit
- **Betty's amount:** 3 units

Step 2: Calculate the "After" Total

We know they started with 308 stickers. Alex gave away 56 stickers, but those stickers didn't go to Betty—they are gone.

1. **Total stickers remaining:**  $308 - 56 = 252$
2. **Value of 4 units:**  $252 \div 4 = 63$
3. **Value of 1 unit (Alex's end amount):**  $63$

Step 3: Work Backwards to the "At First" State

Now we perform the inverse operation. Alex *gave away* 56 stickers to get to his final number (63). To find what he had *at first*, we **add** those 56 stickers back to his bar.

- **Alex at first:**  $63 + 56 = 119$
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### Key Takeaways

- **The Total Changes:** When using model drawing, always check if the "Total" remains the same. Since Alex gave stickers away to an external source (not to Betty), the total decreased from 308 to 252.
- **Define the "Unit":** The "After" model is usually the easiest place to define your units because the ratio (3 to 1) is clearly stated there.
- **Inverse Operations:** The core of working backwards is simply "undoing" the story. Since the story ended with Alex having 56 fewer stickers, we start our solution by adding them back to his final share.

### Discussion Question

Follow the trainer in this video and solve this question.

Alex and Betty had a total of 308 stickers at first.

After Alex gave away 56 stickers, Betty had 3 times as many stickers as Alex.

How many stickers did Alex have at first?



3. Library A and Library B had a total of **1,200** books. After Library A donated **200** books to charity, Library B had **3 times** as many books as Library A. How many books did Library A have at first?

4. A bakery had a total of **520** chocolate and vanilla cupcakes. After the baker sold **70** chocolate cupcakes, there were **9 times** as many vanilla cupcakes as chocolate cupcakes left. How many chocolate cupcakes were there at first?

**Answer Key**

1. 80

2. 210

3. 450

4. 115