Maths Accelerator Centre

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P5 Problem Sums – Mini Lesson

Term 1 Lesson 3

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🖊️ Strategy: Completing the unit

The **"Complete the Unit"** strategy (often associated with Singapore Model Drawing) is a visual approach used to solve word problems where two quantities change differently but end up being equal or having a known relationship.

It is particularly powerful for problems involving "before and after" scenarios where you want to transform your model into equal, comparable parts (units).

Description: How it Works

In the problem discussed, Anika and Krishnan ended up with the **same amount**. This "equal ending" is your anchor. Instead of working backward with complex subtraction, you draw the final state first and then "add back" or "remove" the changes to see the original "units."

1. **Start with the Equal State:** Draw two identical bars representing their final, equal amounts.
2. **Reverse the Changes:** * **Anika:** Since she *received* $74, her original bar was shorter. We "cut off" a piece worth 74 from her unit.
    - **Krishnan:** Since he *spent half*, his original bar was twice as long. We add an identical unit to his bar to show his starting amount.
3. **Identify the Total:** The sum of these modified bars equals the original total (322).
4. **Solve for 1 Unit:** By looking at the model, you can see how many equal units (portions) make up the total once the fixed numbers (like the 74) are accounted for.

🔑 Key Takeaway

- **Visualizes the "Hidden" Math:** It turns abstract algebraic expressions into concrete blocks, making it much harder to make a calculation error.
- **The Power of the "Equal" Sign:** Always look for the moment in the story where things become "the same." That is almost always where you should start your drawing.
- **Works for Ratios Too:** This isn't just for equal amounts; you can use it whenever there is a defined relationship (e.g., "Anika had twice as much as Krishnan at the end").
- **Reduces Cognitive Load:** By "completing the unit," you stop guessing which operation to use and simply "see" that you need to add 74 back to the total to make three perfectly even units.

Discussion Question

Follow the trainer in this video and solve this question.

Anika and Krishnan had at total of $322 at first. After Anika received $74 from her mother and Krishnan spent half of his money, they had the same amount of money.

How much money did Anika have at first?

Practice Time

Here are **4 practice questions** based on this strategy.
Follow the step-by-step method we discussed in the video to solve each one.

✅ Work through the problems carefully.
✅ Check your solutions against the **Answer Key** provided on the last page.

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1. Siti and Ravi had a total of **$450** at first. After Siti received **50** from her father and Ravi spent $\frac{1}{2}$ of his money, they both had the same amount of money left. How much did Siti have at first?

2. Chloe and Liam had **180 stickers** altogether. Chloe gave away $\frac{1}{2}$ of her **stickers** to her brother, while Liam's teacher gave him another **30 stickers**. After these changes, they both had an equal number of stickers. How many stickers did Chloe have at first?

3. "Box A and Box B have a total mass of **120 kg**. After **15 kg** of sand was added to Box A and Box B lost $\frac{1}{2}$ of its original mass, both boxes became equal in weight. Find the mass of Box A at first.

4. Ming and Sarah shared **$560** at first. After Ming received **$82** and Sarah spent **half** of her money, they had the same amount remaining. How much money did Ming have at first?

Answer Key

1. $ 110
2. 140
3. 30 kg
4. $132