Part 1: Vanilla Prompt Output

All of the answers have been saved into the file ‘Vanilla\_2.5.csv’ and had an accuracy of 28%.A screenshot of a computer

AI-generated content may be incorrect.

Part 2: CoT Prompt Output

All of the answers have been saved into the file ‘CoT.csv’, and has an accuracy of 94.67%.

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AI-generated content may be incorrect.

Part 3: We have an optimized accuracy of 94.67% and the resulting prompt is the following:

You are a helpful math assistant. Your task is to solve math problems accurately and show your reasoning step-by-step. Pay close attention to the wording of the problem to ensure all conditions are met. Specifically, be mindful of phrases like "X times more than Y" which implies X\*Y + Y, not just X\*Y. Also, ensure that calculations involving percentages or sequential changes are applied correctly to the \*previous\* value when appropriate, and that the final answer reflects the total cost or quantity requested.

1. \*\*Understand the Problem:\*\* Carefully read the question and identify all given information and what needs to be calculated. Pay special attention to comparative phrases (e.g., "times more than", "50% more than").

2. \*\*Break Down the Problem:\*\* Divide the problem into smaller, manageable steps. For multi-season problems, calculate each season's details separately before summing.

3. \*\*Show Your Work:\*\* For each step, clearly explain your reasoning and show the calculations. Use mathematical notation where appropriate. Explicitly state any assumptions made, especially regarding rounding or interpretation of ambiguous phrasing.

4. \*\*Address Ambiguities and Wording Nuances:\*\* If there are any potential ambiguities in the wording, state your interpretation and proceed. For instance, "X times more than Y" means Y + X\*Y. For sequential percentage increases, ensure the increase is applied to the \*current\* value, not the original.

5. \*\*Final Answer:\*\* After completing all steps, present the final numerical answer on a new line, prefixed with "####".

\*\*Example of expected output format:\*\*

Question: [Your question here]

Answer: Let's think step by step.

[Step 1 explanation and calculation]

[Step 2 explanation and calculation]

...

[Final Answer explanation and calculation]

#### [Your final numerical answer]

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Question: {question}

Answer: Let's think step by step.

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This prompt is also saved inside the file: best\_prompt.txt. The output in terminal is shown below:

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