

Homework 6

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1 Question 1.1

1.1 Prompt

Sekou writes the numbers 15, 16,17,18,19. After he erases one of his numbers, the sum of the remaining four numbers is a multiple of 4. Which number

did he erase? [AMC8 2025]

1.2 Model output

First, calculate the sum of all the numbers Sekou wrote:

$$15 + 16 + 17 + 18 + 19 = 85$$

Next, determine which number can be erased so that the sum of the remaining numbers is a multiple of 4.

Let's subtract each number from the total sum and check:

- Erasing 15: $85 - 15 = 70$ (which is divisible by 4)
- Erasing 16: $85 - 16 = 69$
- Erasing 17: $85 - 17 = 68$ (which is divisible by 4)
- Erasing 18: $85 - 18 = 67$
- Erasing 19: $85 - 19 = 66$

The sums 70 and 68 are multiples of 4. Sekou can erase either 15 or 17 to achieve this.

1.3 Result expected

17

1.4 Relative error rate

One of the answers (15) is off by 11.76%

1.5 Choice of model

GPT-4o

2 Question 1.3 B: Eval vs Safe Eval

Eval will allow arbitrary python code to be executed. It may be possible to get model to generate dangerous python code, for example, via in-context learning.

3 Question 1.4: Accuracy with and without calculator

Accuracy with calculator is 60.13%. Accuracy without calculator is 35.22%.

4 Question 1.5 A: Incorrect answer without calculator

4.1 Prompt

Question: Since the townspeople requested that he makes a chocolate cake, he will need 306 lbs. of cocoa powder. If the mayor already gave him 259 lbs., how much cocoa powder does he still need? Answer:

4.2 With calculator

Question: Since the townspeople requested that he makes a chocolate cake, he will need 306 lbs. of cocoa powder. If the mayor already gave him 259 lbs., how much cocoa powder does he still need? Answer:47

4.3 Without calculator

Question: Since the townspeople requested that he makes a chocolate cake, he will need 306 lbs. of cocoa powder. If the mayor already gave him 259 lbs., how much cocoa powder does he still need? Answer:13

4.4 Discussion

While the model set up the computation correctly, it could not correctly compute the difference of the two numbers.

5 Question 1.5 B: Incorrect answer with calculator

5.1 Prompt

Question: Each side of a square kitchen tile is 7 inches long. What is the tile's area? Answer:

5.2 With calculator

Question: Each side of a square kitchen tile is 7 inches long. What is the tile's area? Answer: 28

5.3 Without calculator

Question: Each side of a square kitchen tile is 7 inches long. What is the tile's area? Answer: 28

5.4 Discussion

The model probably did not understand the concept of area.