

Table 18: BoT’s success reasoning process for “Mariah’s grandma was teaching her to knit. Mariah used 1/4 of a skein of yarn. Her grandma used 1/2 of a skein of yarn. There are 364 yards in a skein of yarn. How many yards of yarn did they use altogether? ”.

Experience obtained in Iteration 1
<p>##### The 1-th Reasoning Chain with Comments #####</p> <p>Below is a reasoning chain containing reasoning steps presented in order:</p> <p>Step 1: Convert the fractions of the skein of yarn used by Mariah and her grandma into yards. Mariah used 1/4 of a skein, which equals $1/4 * 364$ yards. Her grandma used 1/2 of a skein, which equals $1/2 * 364$ yards.. Evaluate Score: 1.0</p> <p>Step 2: Calculate the total yards of yarn used by both Mariah and her grandma by adding the yards of yarn Mariah used and the yards of yarn her grandma used.. Evaluate Score: 1.0</p> <p>Step 1: Convert the fractions of the skein of yarn used by Mariah and her grandma into yards. Mariah used 1/4 of a skein, which equals $1/4 * 364$ yards = 91 yards. Her grandma used 1/2 of a skein, which equals $1/2 * 364$ yards = 182 yards.. Evaluate Score: 1.0</p> <p>Analysis Report: The reasoning chain can complete the task and reach the target correctly by executing its reasoning steps. The steps are logical, follow a clear progression, and are necessary for solving the problem. The steps convert the fractions of the skein of yarn used into yards, which is necessary to determine the total amount of yarn used. Then, they add these quantities together to find the total amount of yarn used by both Mariah and her grandma.</p> <p>Reasoning step 1. This step correctly converts the fractions of the skein of yarn used by Mariah and her grandma into yards. It is a logical inference of the problem statement and beneficial to the correct solution as it translates the problem into the same unit (yards), making it possible to add the quantities together. Advice: None. Recommendation: This step is correct and should be kept as is.</p> <p>Reasoning step 2. This step logically follows from the previous step, as it involves adding together the quantities of yarn used by Mariah and her grandma, which have been converted into the same unit in the previous step. This step is beneficial to the correct solution as it calculates the total amount of yarn used, which is the objective of the problem. Advice: None. Recommendation: This step is correct and should be kept as is.</p> <p>Reasoning step 1 (repeated). This step is a repetition of the first step, but with the calculations completed. It is a logical inference of the problem statement and beneficial to the correct solution. However, it should not be repeated in the reasoning chain as it does not add new information or contribute to the progression of the solution. Advice: Remove this repeated step from the reasoning chain. Recommendation: This step is correct but redundant, and should be removed from the reasoning chain.</p> <p>Confidence score: 1.0</p> <p>#####</p>
Experience obtained in Iteration 2
<p>##### The 2-th Reasoning Chain with Comments #####</p> <p>Below is a reasoning chain containing reasoning steps presented in order:</p> <p>Step 1: Calculate the amount of yarn Mariah and her grandma used separately by multiplying the fraction of the skein they used by the total yards in a skein.. Evaluate Score: 1.0</p> <p>Step 1: First, we need to calculate the amount of yarn Mariah and her grandma used separately. To do this, we can multiply the fraction of the skein they used by the total yards in a skein. So, Mariah used $1/4 * 364$ yards of yarn and her grandma used $1/2 * 364$ yards of yarn.. Evaluate Score: 1.0</p> <p>Step 1: First, we need to calculate the amount of yarn Mariah and her grandma used separately. To do this, we can multiply the fraction of the skein they used by the total yards in a skein. So, Mariah used $1/4 * 364$ yards of yarn and her grandma used $1/2 * 364$ yards of yarn.. Evaluate Score: 1.0</p> <p>Step 2: After calculating the amount of yarn Mariah and her grandma used separately, we need to add these amounts together to find the total amount of yarn they used. So, we add Mariah’s yarn ($1/4 * 364$ yards) and her grandma’s yarn ($1/2 * 364$ yards) to get the total amount of yarn used.. Evaluate Score: 1.0</p> <p>Step 1: First, we need to calculate the amount of yarn Mariah and her grandma used separately. To do this, we can multiply the fraction of the skein they used by the total yards in a skein. So, Mariah used $1/4 * 364$ yards of yarn and her grandma used $1/2 * 364$ yards of yarn.. Evaluate Score: 1.0</p> <p>Analysis Report: The reasoning chain is repetitive and contains a redundancy error, with Step 1 being repeated three times. However, the steps themselves are logically correct and lead to the correct solution of the problem.</p> <p>Reasoning step 1. The first step is logically correct. It correctly identifies the need to calculate the amount of yarn Mariah and her grandma used separately by multiplying the fraction of the skein they used by the total yards in a skein. This step is beneficial to the correct solution as it forms the basis for calculating the total amount of yarn used. Advice: None Recommendation: Approved</p> <p>Reasoning step 2. The second step is a logical inference from the first step. After finding out how much yarn Mariah and her grandma used separately, it is logical to add these amounts together to find the total amount of yarn used. This step is beneficial to the correct solution as it allows for the calculation of the total amount of yarn used. Advice: None Recommendation: Approved</p> <p>Error report: The repetition of Step 1 three times is unnecessary and does not contribute to the solution. It should be revised to avoid redundancy.</p> <p>Advice: Eliminate the repetition of Step 1. The reasoning chain should only contain unique steps that contribute to the solution of the problem.</p> <p>Confidence score: 0.9</p> <p>#####</p>
Experience obtained in Iteration 3
<p>##### The 3-th Reasoning Chain with Comments #####</p> <p>Below is a reasoning chain containing reasoning steps presented in order:</p> <p>Step 1: First, we need to calculate the total amount of yarn Mariah and her grandma used in terms of the skein. Mariah used 1/4 of a skein and her grandma used 1/2 of a skein. To find the total amount of skein they used, we need to add 1/4 and 1/2.. Evaluate Score: 1.0</p> <p>Step 2: After finding the total amount of skein they used, convert it into yards. We know that 1 skein is equal to 364 yards. So, multiply the total skein used by 364 to find the total yards (273) of yarn they used.. Evaluate Score: 1.0</p> <p>Analysis Report: The reasoning chain can correctly complete the task and reach the target. The task is to find out how many yards of yarn Mariah and her grandma used altogether. The reasoning chain first calculates the total skeins of yarn used by adding the fractions of the skeins used by Mariah and her grandma. It then converts this total skein amount into yards, which is the final answer required.</p> <p>Reasoning step 1: The first step is a logical inference as it correctly identifies that the first step to solving the problem is to add the fractions of the skeins used by Mariah and her grandma. This step is beneficial to the correct solution as it sets the stage for the conversion of skeins to yards in the next step. No errors are found in this step. Advice: No advice is needed as this step is correctly reasoned. Recommendation: I recommend this step as it correctly identifies the need to calculate the total skeins used first.</p> <p>Reasoning step 2: The second step is a logical inference of the first step. It correctly identifies that the total skeins used needs to be converted into yards to answer the question. This step is beneficial to the correct solution as it leads directly to the final answer. No errors are found in this step. Advice: No advice is needed as this step is correctly reasoned. Recommendation: I recommend this step as it correctly identifies the need to convert the total skeins used into yards.</p> <p>Confidence score: 1.0</p> <p>#####</p>
Experience obtained in Iteration 6
<p>##### The 6-th Reasoning Chain with Comments #####</p> <p>Below is a reasoning chain containing reasoning steps presented in order:</p> <p>Step 1: Calculate how many yards of yarn Mariah used by multiplying the total yards in a skein by the fraction she used, which is 1/4. Similarly, calculate how many yards of yarn her grandma used by multiplying the total yards in a skein by the fraction she used, which is 1/2. Mariah used: $1/4 * 364 = 91$ yards. Grandma used: $1/2 * 364 = 182$ yards. Evaluate Score: 1.0</p> <p>Step 2: Step 2: Add the amount of yarn Mariah used and the amount her grandma used to find the total amount of yarn used. Total yarn used = 273 yards. Evaluate Score: 1.0</p> <p>Step 3: State the total amount of yarn used by Mariah and her grandma. Mariah and her grandma used a total of 273 yards of yarn.. Evaluate Score: 1.0</p> <p>Analysis Report: The reasoning chain is logically sound and correctly completes the task. The reasoning chain starts by calculating how much yarn Mariah and her grandma used individually, then adds these amounts together to find the total amount of yarn used, and finally states the total amount.</p> <p>Reasoning step 1. The first step is logical as it directly applies the information given in the problem, and it is beneficial to the correct solution as it provides the individual amounts of yarn used. Recommendation: The step is correct and should be kept.</p> <p>Reasoning step 2. The second step is a logical inference from the previous step, as it combines the individual amounts of yarn used to find the total amount. This step is beneficial to the correct solution as it directly leads to the answer. Recommendation: The step is correct and should be kept.</p> <p>Reasoning step 3. The third step is to state the total amount of yarn used. Recommendation: The step is correct and should be kept.</p> <p>Confidence score: 1.0</p> <p>#####</p>