

**User Input:** Can you solve the following math problem? Jennifer bought 12 oranges from the market, she gave her three daughters 2 oranges each, and her only boy got 3 oranges. How many oranges did she remain with? Explain your reasoning. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

Round 1	
<b>Agent 1:</b> Jennifer gave a total of 2 oranges/daughter x 3 daughters + 3 oranges/son = 9 oranges to her children. Thus, she remained with 12 oranges - 9 oranges = 3 oranges.  <code>\boxed{3}</code> .	<b>Agent 2:</b> Jennifer gave away a total of $2 \cdot 3 + 3 = 9$ oranges. Therefore, she remained with $12 - 9 = \boxed{3}$ oranges.

**User Input:** These are the solutions to the problem from other agents: One agent solution: (Copy Agent 2's reply) (Copy Agent 1's reply)  
Using the solutions from other agents as additional information, can you provide your answer to the math problem? Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

Round 2	
<b>Agent 1:</b> I agree with the previous solutions provided. Jennifer gave a total of 2 oranges/daughter x 3 daughters + 3 oranges/son = 9 oranges to her children. Thus, she remained with 12 oranges - 9 oranges = 3 oranges.  <code>\boxed{3}</code> .	<b>Agent 2:</b> I agree with the other agents' solutions. Jennifer gave away a total of 2 oranges/daughter x 3 daughters + 3 oranges/son = 9 oranges. Therefore, she remains with 12 oranges - 9 oranges = $\boxed{3}$ oranges.

**User Input:** These are the solutions to the problem from other agents: One agent solution: (Copy Agent 2's reply) (Copy Agent 1's reply)  
Using the solutions from other agents as additional information, can you provide your answer to the math problem? Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

Round 3	
<b>Agent 1:</b> I confirm the previous solutions provided. Jennifer gave a total of 2 oranges/daughter x 3 daughters + 3 oranges/son = 9 oranges to her children. Therefore, she remains with 12 oranges - 9 oranges = $\boxed{3}$ oranges.	<b>Agent 2:</b> I agree with the other agents. Jennifer gave away a total of 2 oranges/daughter x 3 daughters + 3 oranges/son = 9 oranges to her children, therefore she remains with 12 oranges - 9 oranges = $\boxed{3}$ oranges.

Figure 20: Example of Correct GSM8K Debate.

**User Input:** Can you solve the following math problem? A toy manufacturer receives an order for 400 toys. 5 workers are available to work on the order. 2 of the workers produce 6 toys an hour, and another 2 workers produce 4 toys an hour. They all work on the order during their 10-hour shift, and by the end of their shift the manufacturer still needs another 20 toys to be able to ship the order. How many toys per hour does the fifth worker produce? Explain your reasoning. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

#### Round 1

**Agent 1:** Let's first find the total number of toys that the four workers produce in 10 hours.  
The two workers who produce 6 toys an hour make a total of  $6 \times 2 \times 10 = 120$  toys.  
The other two workers who produce 4 toys an hour make a total of  $4 \times 2 \times 10 = 80$  toys.  
Together, they produce  $120 + 80 = 200$  toys.

Since the manufacturer still needs another 20 toys to complete the order, we know that all 5 workers together need to produce a total of  $400 + 20 = 420$  toys.

Subtracting the 200 toys that have already been produced, we're left with  $420 - 200 = 220$  toys that need to be produced by the fifth worker.

Since the workers have worked for 10 hours, we can set up the equation:

Toys per hour for fifth worker  $x \times 10 = 220$

Solving for the toys per hour for the fifth worker, we get:

Toys per hour for fifth worker  $= 220/10 = 22$

Therefore, the fifth worker must produce `\boxed{22}` toys per hour. ❌

**Agent 2:** Let the number of hours each group of workers (6-toy producers and 4-toy producers) work be  $x$  and  $y$ , respectively. Then we have the following system of equations:

$$\begin{aligned} 2(6x) + 2(4y) &= 400 + 20 \\ 12x + 8y &= 210 \quad (\text{Equation 1}) \\ x + y &= 10 \quad (\text{Equation 2}) \end{aligned}$$

Simplifying Equation 2, we get:

$$y = 10 - x$$

Substituting this into Equation 1, we get:

$$\begin{aligned} 12x + 8(10 - x) &= 210 \\ 4x &= 50 \\ x &= 12.5 \end{aligned}$$

Thus, the first 4 workers produce a total of  $2(6)(12.5) + 2(4)(10 - 12.5) = 150$  toys. Since they still need another 20 toys to meet the order, the fifth worker must produce  $20/10 = 2$  toys per hour.

Therefore, the fifth worker produces `\boxed{2}` toys per hour. ❌

**User Input:** These are the solutions to the problem from other agents: One agent solution:

(Copy Agent 2's reply)

(Copy Agent 1's reply)

Using the solutions from other agents as additional information, can you provide your answer to the math problem?

Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

#### Round 2

**Agent 1:** There is an error in the previous solution provided. The number of toys produced by the four workers in 10 hours is incorrect. The correct calculation should be:

$$\begin{aligned} 2(6 \text{ toys per hour}) \times 10 \text{ hours} \times 2 \text{ workers} &= 240 \text{ toys} \\ 2(4 \text{ toys per hour}) \times 10 \text{ hours} \times 2 \text{ workers} &= 160 \text{ toys} \\ \text{Total toys produced by the four workers} &= 240 + 160 = 400 \text{ toys} \end{aligned}$$

So, the manufacturer still needs to produce another  $400 - 20 = 380$  toys. To produce the remaining 380 toys in 10 hours, all five workers need to produce  $380/10 = 38$  toys per hour.

Since four workers are already producing 6 and 4 toys per hour, we can set up the equation:

$$\begin{aligned} 2(6) + 2(4) + x &= 38 \\ \text{Simplifying this, we get: } x &= 7 \end{aligned}$$

Therefore the fifth worker must produce `\boxed{7}` toys per hour. ❌

**Agent 2:** I agree with the updated solution provided by the other agent. The total toys produced by the four workers in 10 hours is 400, and since the manufacturer still needs to produce another 380 toys, all five workers need to produce 38 toys per hour.

Setting up the equation, with  $x$  being the number of toys produced by the fifth worker per hour, we get:

$$\begin{aligned} 2(6) + 2(4) + x &= 38 \\ 12 + 8 + x &= 38 \\ x &= 18 \end{aligned}$$

Therefore, the fifth worker must produce `\boxed{18}` toys per hour. ✅

**User Input:** These are the solutions to the problem from other agents: One agent solution:

(Copy Agent 2's reply)

(Copy Agent 1's reply)

Using the solutions from other agents as additional information, can you provide your answer to the math problem?

Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

#### Round 3

**Agent 1:** I believe there is an error in the updated solution provided by the other agents. The total number of toys produced by the four workers in 10 hours is indeed 400, and since the manufacturer still needs to produce another 380 toys, all five workers need to produce 38 toys per hour.

Setting up the equation, with  $x$  being the number of toys produced by the fifth worker per hour, we get:

$$\begin{aligned} 2(6) + 2(4) + x &= 38 \\ 12 + 8 + x &= 38 \\ x &= 18/5 \end{aligned}$$

Therefore, the fifth worker must produce `\boxed{3.6}` toys per hour. ❌

**Agent 2:** I agree with the latest solution provided by the other agent. The total number of toys produced by the four workers is 400, and the manufacturer still needs to produce another 380 toys. To produce the remaining 380 toys in 10 hours, all five workers need to produce 38 toys per hour.

Setting up the equation, with  $x$  being the number of toys produced by the fifth worker per hour, we get:

$$\begin{aligned} 2(6) + 2(4) + x &= 38 \\ 12 + 8 + x &= 38 \\ x &= 18/5 \end{aligned}$$

Therefore, the fifth worker must produce `\boxed{3.6}` toys per hour. ❌

Figure 21: Example of Incorrect GSM8K Debate.

**User Input:** Can you solve the following math problem? Courtney attended a concert and reported that the audience was 48 in number. However, Kelly went to the same concert and said that Courtney had made the mistake of overstating the number of people in attendance by 20%. If Kelly was right, how many people really attended the concert? Explain your reasoning. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

### Round 1

**Agent 1:** If Courtney overstated the number of people by 20%, that means she reported 120% of the actual number of people. Let's call the actual number of people  $x$ . Then we can set up the following equation:

$$1.2x = 48$$

Solving for  $x$ , we get:

$$x = 40$$

Therefore, the actual number of people who attended the concert was `\boxed{40}`.



**Agent 2:** Let's call the actual number of people at the concert " $x$ ." Then, according to Kelly's statement, we know that:

$$x = 48 - 0.20(48)$$

$$x = 48 - 9.6$$

$$x = 38.4$$

Therefore, the actual number of people at the concert was `\boxed{38}`.



**User Input:** These are the solutions to the problem from other agents: One agent solution:

(Copy Agent 2's reply)

(Copy Agent 1's reply)

Using the solutions from other agents as additional information, can you provide your answer to the math problem? Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

### Round 2

**Agent 1:** The other agent's solution assumes that Courtney overstated the number of people by 20 percentage points, not 20 percent of the original number. This means their answer is incorrect.

Instead, we can use the method in the first solution. Let  $x$  be the actual number of people at the concert. Then, we know that:

$$x = 48 * (100\% - 20\%) = 48 * 0.8 = 38.4$$

Therefore, the actual number of people at the concert was `\boxed{38}`.



**Agent 2:** I agree with the first agent's solution that we need to consider the 20% decrease from the original number of people. Let  $x$  be the actual number of people at the concert, then we have:

$$x = 48 - 0.20(48)$$

$$x = 48 - 9.6$$

$$x = 38.4$$

Rounding to the nearest whole number, we get that the actual number of people at the concert was `\boxed{38}`.

I also agree with the second agent's point that we should be careful in interpreting the 20%, as it could be presented in percentage points or as a percent of the original number.



**User Input:** These are the solutions to the problem from other agents: One agent solution:

(Copy Agent 2's reply)

(Copy Agent 1's reply)

Using the solutions from other agents as additional information, can you provide your answer to the math problem? Please update and respond to other agents. Your final answer should be a single numerical number, in the form `\boxed{answer}`, at the end of your response.

### Round 3

**Agent 1:** I agree with the previous agents that we need to consider the 20% decrease from the original number of people. Let  $x$  be the actual number of people at the concert, then we have:

$$x = 48 * 0.80 = 38.4$$

Since we cannot have a fraction of a person, we round to the nearest whole number, giving us that the actual number of people at the concert was `\boxed{38}`.

I also agree with the second agent's point that we should be careful in interpreting the 20%, as it could be presented in percentage points or as a percent of the original number. In this case, the wording suggests that it should be interpreted as a percent of the original number.



**Agent 2:** I agree with the previous agents that the 20% decrease should be calculated as a percentage of the original number of people. Let  $x$  be the actual number of people at the concert, then we have:

$$x = 48 * 0.80 = 38.4$$

Since we cannot have a fraction of a person, we should round the answer to the nearest whole number. Therefore, the actual number of people at the concert was `\boxed{38}`.

I also appreciate the second agent's point about being careful with the interpretation of the percentage, as it could be presented in percentage points or as a percent of the original number. In this case, it seems reasonable to assume that the 20% decrease refers to a percentage of the original number.



Figure 22: Example of Incorrect GSM8K Debate.