

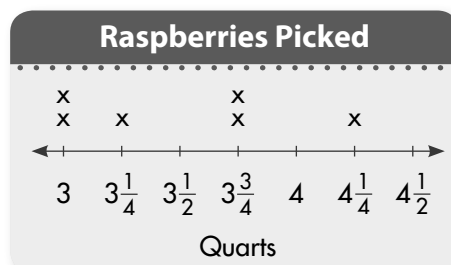
Additional Practice 10-4 Critique Reasoning

Another Look!

A cooking class needs 20 quarts of raspberries. The instructor, Mr. Romano, made a line plot to show how many quarts of raspberries each student picked at a raspberry farm. Then he said, "We need another $\frac{3}{4}$ quart." He showed the class:

$$(2 \times 3) + 3\frac{1}{4} + (2 \times 3\frac{3}{4}) + 4\frac{1}{4} =$$

$$6 + 3\frac{1}{4} + 5\frac{3}{4} + 4\frac{1}{4} = 19\frac{1}{4}.$$



Tell how you can critique Mr. Romano's reasoning.

- I can decide if his strategy makes sense.
- I can look for flaws in his calculations.
- I can clarify or correct his reasoning.

Critique Mr. Romano's reasoning.

Mr. Romano's strategy makes sense, but he made a careless mistake in his calculations. $(2 \times 3\frac{3}{4}) = 7\frac{1}{2}$, not $5\frac{3}{4}$. So, the class picked $6 + 3\frac{1}{4} + 7\frac{1}{2} + 4\frac{1}{4} = 21$ quarts. They have enough raspberries.

When you critique reasoning, you explain why someone's thinking is correct or incorrect.



Critique Reasoning

Gillian said that if all the students and Mr. Romano had each picked just $2\frac{1}{2}$ quarts of raspberries, they would have had enough. She estimated $7 \times 3 = 21$.

1. Tell how you can critique Gillian's reasoning.

Sample answer: I can check if her estimate makes sense and check her calculations.

2. Critique Gillian's reasoning.

Her reasoning does not make sense. She was correct to multiply by 7 since there are 6 students plus Mr. Romano. She correctly rounded $2\frac{1}{2}$ to 3 and calculated the product $3 \times 7 = 21$. But because 21 is an overestimate, there may not be enough raspberries.

3. Identify the flaw in Gillian's thinking.

Because recipes use precise amounts, she should find the actual amount: $7 \times 2\frac{1}{2} = 17\frac{1}{2}$, which is not enough raspberries.

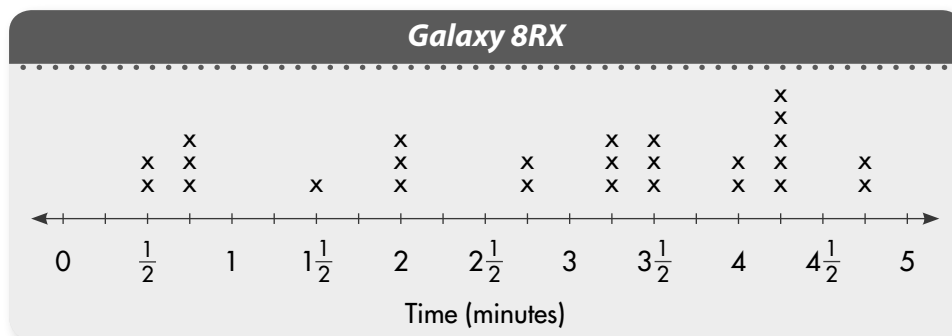




Performance Task

Video Game

Lydia is playing *Galaxy 8RX*. After three misses, the game is over. Last week, Lydia kept track of how long her games lasted. She made a line plot of her data. Lydia said, "My best time is $2\frac{3}{4}$ minutes longer than my worst time because $4\frac{1}{4} - 1\frac{1}{2} = 2\frac{3}{4}$."



4. **Model With Math** Is subtraction the correct operation to compare Lydia's best and worst times? Explain.

Yes; you can use subtraction to show how much more one measure is than another.

5. **Be Precise** Are Lydia's calculations accurate? Show how you know.

Yes; $4\frac{1}{4} - 1\frac{1}{2} = 3\frac{5}{4} - 1\frac{2}{4} = 2\frac{3}{4}$

6. **Make Sense and Persevere** In the line plot, what do the numbers Lydia subtracted represent?

$4\frac{1}{4}$ represents the time that occurred most often, and $1\frac{1}{2}$ represents the time that occurred least often.

7. **Critique Reasoning** Does Lydia's conclusion make sense? How did you decide? If not, what can you do to improve her reasoning?

No; Sample answer: She found the difference between the times that occurred most often and least often, not between her best and worst times. Lydia needs to subtract her worst (shortest) time from her best (longest) time: $4\frac{3}{4} - \frac{1}{2} = 4\frac{1}{4}$. Her best time is $4\frac{1}{4}$ minutes longer than her worst time.

When you critique reasoning, you need to carefully consider all parts of a person's reasoning.

