

Item 5

Claim 3
6.RP.3.b

SAMPLE	SCORE	RATIONALE
A	1	This response provides evidence of robust mathematical reasoning in context, and could arguably be given full credit. However, the explanation does not take into consideration Sam's painting rate, or a role for Sam at all. The first part of Sam's claim is, "If we paint together. . . ." The student seemed to ignore this premise, which is an important aspect of the situation.
B	2	Although the student only accounted for the area painted by himself/herself after the first 10 minutes of painting together ("there will still be 5 more minutes so then I can paint another 25"), the argument makes clear that more than 50 square feet will be painted in 15 minutes by both the student and Sam together. The response provides evidence of using the context to reason informally, but correctly, about the two different given rates and to coordinate these rates with appropriate time intervals. Note: This response could reasonably be given a score of 1 point, in part because the student did not address Sam's claim directly and the item is aligned to Claim 3. We gave the response full credit for being a clear and correct explanation that is well-reasoned within the context.
C	2	The student was able to refute Sam's claim by focusing on the time. Specifically, the explanation focuses on what could happen in 10 minutes: The student could paint 25 square feet and then stop, which would be 5 minutes of elapsed time. Sam could paint during this time, and then continue to paint for the remaining 5 minutes, which would result in completing 25 more square feet. Together, they would paint a total of 50 square feet in 10 minutes, as opposed to the 15 minutes claimed by Sam. Although there is not a lot of evidence of explicit reasoning about unit rates or how to handle two different constant rates, the student provided clear evidence of using the context to reason about the relevant quantities, including pointing out that 75 (square) feet could be covered in 10 minutes if both painters continued painting during the 10 minutes.
D	0	This response includes fragmented mathematical reasoning and no evidence of understanding the significance of the given rates. It is unclear why the student multiplied the given painting times (" $10 \times 5 = 50$ not 15"), but perhaps this was an attempt to consider a product rather than a sum, since the context involves square feet.
E	0	The student did not demonstrate why Sam is incorrect. The argument includes some mathematical reasoning, but relies on rather extraneous hypotheticals ("what if I take longer or we run out of paint").
F	1	This response addresses Sam's claim directly, and the student was correct in stating that it takes less than 15 minutes to paint 50 square feet. However, the student seemed to only take into account the amount painted by one person ("takes us 5 minutes to paint 25 square feet"); this is the rate for the student alone, and there is no consideration of Sam's painting rate.

Item 5 *(continued)***Claim 3**
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SAMPLE	SCORE	RATIONALE
G	2	The student demonstrated that Sam is incorrect by focusing on the relevant rates. The response does include mathematical errors: The area covered by “you” in 15 minutes is incorrect (30 square feet), and as a result, the statement about the combined painted area is incorrect (105 square feet). However, there is strong evidence of reasoning about rates in context, including a clear understanding that in 15 minutes the student alone would have painted 75 square feet, and by working together for 15 minutes, Sam and the student would cover their combined total areas, which is a lot more than the 50 square feet in Sam’s claim.
H	0	The student provided no evidence to explain or support the statement in his/her response.
I	2	This response provides clear evidence of reasoning successfully about the two different given constant rates. The student used the given painting rates for each person to correctly calculate the square feet each person would cover in 15 minutes. The student would paint 75 square feet in 15 minutes, while Sam would paint 37.5 square feet in the same amount of time. This totals more than the 50 square feet in Sam’s claim.