MAT.08.ER.3.000EE.A.139 Claim 3

Sample Item ID:	MAT.08.ER.3.000EE.A.139
Grade:	08
Primary Claim:	**Claim 3: Communicating Reasoning** Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.
Secondary Claim(s):	Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Primary Content Domain:	Expressions and Equations
Secondary Content Domain(s):	
Assessment Target(s):	3 A: Test propositions or conjectures with specific examples. 1 C: Understand the connections between proportional relationships, lines, and linear equations.
Standard(s):	8.EE.6
Mathematical Practice(s):	1, 2, 3, 5, 7
DOK:	2
Item Type:	ER
Score Points:	2
Difficulty:	M
Key:	See Sample Top-Score Response.
Stimulus/Source:	
Claim-Specific Attributes (e.g., accessibility issues):	Calculators may be used for this item.
Notes:	Part of PT set

Mr. Perry's students used pairs of points to find the slopes of lines. Mr. Perry asked Avery how she used the pairs of points listed in this table to find the slope of a line.

x	***y***
8	18
20	45

Avery said, "The easiest way to find the slope is to divide *y* by *x*. The slope of this line is $\frac{18}{8}$, or $\frac{9}{4}$."

Part A

Show another way to find the slope of the line that passes through the points listed in the table. Your way must be different from Avery's way.

Part B

Write an example that shows that Avery's "divide *y* by *x*" method will not work to find the slope of **any** line.

Sample Top-Score Response:

Part A:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{45 - 18}{20 - 8} = \frac{27}{12} = \frac{9}{4}$$

Part B:

If Mr. Perry asked the class to find the slope of the line through (1, 1) and (2, 3), you can find the actual slope by using the formula and get $\frac{3-1}{2-1} = \frac{2}{1} = 2$, but Avery's method will not work because she would either say the slope is $\frac{1}{1} = 1$ or $\frac{3}{2} = 1.5$.

Scoring Rubric:

Responses to this item will receive 0-2 points, based on the following:

2 points: The student shows thorough understanding of the slope of lines. The student correctly finds the slope in a different way and provides an example where Avery's method does not work.

1 point: The student shows partial understanding of the slope of lines. The student makes one or two mathematical errors when finding the slope in a different way but provides an example where Avery's method does not work. **OR** The student correctly finds the slope in a different way but is unable to provide an example where Avery's method does not work.

0 points: The student shows inconsistent or no understanding of the slope of lines. If the student demonstrates a conceptual misunderstanding of slope in *Part A*, the score is 0 regardless of the example given in *Part B*.