

Anchor Paper Scoring and Rationales - Task: Summer Passes

Name: Student A

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Advanced	The student demonstrates an understanding of concepts and skills associated with the task. The student correctly created tables, graphs and equations that represented the three scenarios to reach the correct solution.
Problem Solving	Advanced	The student approaches the task using tables to determine who will have the money for the pass first. The student uses an efficient strategy when completing the tables. The student strategically makes jumps in the x-values to get to the targeted y-value of 86. The student uses the graph and equations to confirm their solution.
Communication and Reasoning	Proficient	The student's reasoning is apparent from the tables, equations and graph. The student supports their answer primarily with algebraic evidence. The summative statement, "Their line is not as steep as Michael, therefore they finish later.", relates the slope to the dependent variable.
Representations and Connections	Advanced	The student used multiple representations of the situation to explore and model the task. The student uses the horizontal line $y = \$86$ (in the graph) to represent the target output needed and labels the line Pass Price to analyze the relationships.

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Name: Student B

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	The student demonstrates understanding of rate in the initial analysis of the task. The student applies the concept of input and output to lead to a correct solution. The student confirmed the solution by modeling the relationship with a table and graph. The analysis led to a valid and correct answer.
Problem Solving	Proficient	The student's strategy was well developed. The student identified the different rates of earning in the task. Using logic, the student identified the number of days to reach the target output of \$86. The strategy resulted in a relevant solution. The student confirms the solution with a table and graph.
Communication and Reasoning	Advanced	The student communicates their reasoning throughout the task. The student communicates the situation and how long will it take for everyone to reach the target output of \$86. The student justifies each part using a table and graph. The student also explains the solution verbally. The student's description is concise and coherent.
Representations and Connections	Advanced	The student uses logic to explore the task and models the task mathematically with accurate labeling of the tables and graphs. The student uses multiple representations and makes connections between them. Using the table to deepen thinking, the student explains how to get from one day to the next.

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Name: Student C

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	An understanding of rate is demonstrated when the student determines the number of days needed for each individual to reach the targeted outcome of \$86. The student reached a valid and correct solution.
Problem Solving	Advanced	The student uses tables to display an understanding of mathematical concepts. Efficiency can be noted as the student skips the middle x-values. The student recognizes the pattern in the table after a few entries, and then jumps to the end of the table. The student also connects that Michael will not earn exactly \$86 and uses the inequality $86 < 90$ to illustrate that Michael will need 9 days to reach the targeted amount.
Communication and Reasoning	Proficient	The student's logic was demonstrated through arithmetic used to determine the time needed for each person to reach the targeted amount of \$86. An inequality was used to support the response that Michael would be the first to be able to purchase a summer pass.
Representations and Connections	Proficient	The student used multiple representations with accurate labels to model the problem. The student used logic to attack the problem first and then the student says, "another way to get the answer". The student then used a table to represent the situation.

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Name: Student D

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Proficient	The student demonstrates an understanding of modeling relationships involving rate when representing each person's earnings with an equation. The student displays an understanding of equations and solved the equations to arrive at a correct solution to the task.
Problem Solving	Advanced	The student's problem-solving strategy is well developed and efficient. The student solved equations then confirmed the solutions using tables. When using the table, the student uses jumps in the x-values to keep the length of the table reasonable.
Communication and Reasoning	Developing	The student supports their solution with evidence; however, no formal mathematical language is used when communicating reasoning. The student's reasoning is limited to the interpretation of the computational work shown.
Representations and Connections	Proficient	The student uses equations and tables to model the different scenarios with accurate labels.

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Name: Student E

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Developing	The student demonstrates a partial understanding of the rate in the description that Michael will earn the money the fastest. The student also indicates that Susie and Karl are earning at the same pace and why Susie will earn the targeted amount of \$86 faster. The solution is incomplete because the student never addresses the second part of the task.
Problem Solving	Developing	The student's problem-solving strategy produces an incomplete solution. The student does not confirm reasonableness with any method relevant to the task.
Communication and Reasoning	Developing	The student's reasoning is limited to the first part of the task. The justification of the solution is limited by the inaccuracy of the graph. Although the student uses mathematical language to communicate thinking, the student does not address the second part of the task.
Representations and Connections	Developing	The student makes a partial mathematical connection with a graph. The representation is limited by its execution. The student does not identify which lines model the earnings of Michael, Susie and Karl. The student also does not connect a line to an equation and fails to keep intervals equal on the x-axis and y-axis.

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Name: Student F

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
Mathematical Understanding	Developing	<p>The student demonstrates some understanding of rate. The student identifies how long it will take each person to reach the targeted amount of \$86. The additive relationships are not represented correctly.</p> $51 \text{ days} = 35(1 \times 35) = 86 /$ $36 \text{ days} = 36(30 \times 1) = 86$ <p>The graph indicates a partial understanding of how to model the relationship. The student does not extend the information into an answer to either part of the task.</p>
Problem Solving	Developing	<p>The student's problem-solving strategy displays limited understanding of how to connect the mathematics to the solution of the task. The student produces values that could lead to a solution.</p>
Communication and Reasoning	Emerging	<p>The student does not provide evidence to support a solution. The student does not communicate their thinking; only mathematical calculations are present.</p>
Representations and Connections	Developing	<p>The student uses an incomplete representation to model the problem. The tables are not properly labeled and are difficult to follow. The graph of the lines is not accurately drawn. The student makes a partial mathematical connection relevant to the task.</p>