

## Anchor Paper Scoring and Rationales

Task: Exploring Quadrilaterals

Student: A

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Developing	The student demonstrates a partial understanding of concepts and skills associated with the task. The student uses quadrilaterals and recognizes the need for different quadrilaterals to accommodate different properties. Quadrilateral C does not seem to be in the correct place.
<b>Problem Solving</b>	Proficient	The student's strategy displays an understanding of the underlying mathematical concept of pairs of parallel sides and pairs of congruent sides. Three of the solutions are relevant and are confirmed through the student's explanation.
<b>Communication and Reasoning</b>	Developing	The student's reasoning contains some misconceptions and limited mathematical language. The student could move to "proficient" by clearly stating "pairs" of parallel and congruent sides.
<b>Representations and Connections</b>	Proficient	The student uses a representation to explore and model the problem. The student makes mathematical connections that are relevant to the context of "pairs of parallel sides" and "pairs of congruent sides" by creating quadrilaterals that fit the characteristics accurately.

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Student: B

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Emerging	This student applies limited mathematical concepts and skills in an attempt to find a solution. The student puts rectangles of different sizes and orientations, possibly showing a misconception that these are different shapes.
<b>Problem Solving</b>	Emerging	This student's solution does not show problem-solving that is relevant to the context of pairs of parallel sides and pairs of congruent sides.
<b>Communication and Reasoning</b>	Emerging	This student's communication does not provide evidence for reasoning that supports pairs of congruent sides or pairs of parallel sides. Instead, the student mostly refers to right angles and number of sides.
<b>Representations and Connections</b>	Emerging	This student is not making mathematical connections between pairs of parallel and congruent sides and the rectangles created.

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Student: C

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Proficient	This student demonstrates an understanding of the relationship between pairs of parallel sides and pairs of congruent sides in quadrilaterals. The student is able to apply mathematical concepts and skills that lead to two valid and correct solutions.
<b>Problem Solving</b>	Proficient	The student's problem-solving strategy displays an understanding of the mathematical concepts of characteristics of quadrilaterals. The solution is relevant to the problem.
<b>Communication and Reasoning</b>	Proficient	This student demonstrates reasoning and justifies the solution steps for why each quadrilateral makes sense. The student supports arguments and claims with evidence that includes accurate mathematical language of "pairs" of parallel and congruent sides.
<b>Representations and Connections</b>	Proficient	The student uses a representation to support reasoning, making a connection between parallelism/congruency and quadrilaterals.

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Student: D

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Proficient	This student demonstrates an understanding of the relationship between pairs of parallel sides and pairs of congruent sides in quadrilaterals. The student is able to apply mathematical concepts and skills that lead to two valid and correct solutions. The student could move to “Advanced” by further explaining the relationship and generalizing about the boxes that have more than one quadrilateral in them.
<b>Problem Solving</b>	Proficient	The student’s problem-solving strategy displays an understanding of the mathematical concepts of characteristics of quadrilaterals. The solution is relevant to the problem.
<b>Communication and Reasoning</b>	Developing	The student’s reasoning contains some misconceptions and limited mathematical language. The student could move to “proficient” by clearly stating “pairs” of parallel and congruent sides.
<b>Representations and Connections</b>	Proficient	The student uses a representation to support reasoning, making a connection between parallelism/congruency and quadrilaterals.

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Task: Exploring Quadrilaterals

Student: E

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Developing	The student demonstrates a partial understanding of concepts and skills associated with the task. The student uses two quadrilaterals but also includes a triangle.
<b>Problem Solving</b>	Developing	This student's problem solving strategy demonstrates limited understanding of the underlying mathematical concept, including a triangle instead of quadrilaterals.
<b>Communication and Reasoning</b>	Developing	The student's reasoning contains some misconceptions and limited mathematical language. The student uses "set of parallel lines" and "intercepting" in a way of describing a quadrilateral in two different ways. The student does not mention congruency.
<b>Representations and Connections</b>	Developing	The student uses an incomplete or limited representation to model the problem, making only a partial mathematical connection between parallelism/congruency and quadrilaterals. The student reverts to a triangle when considering zero pairs of both.

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**Task: Exploring Quadrilaterals**

**Student: F**

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Developing	This student demonstrates a partial understanding of congruency and parallelism and is able to apply the concepts to a partially correct solution. Quadrilaterals C and D do not seem to be in the correct place.
<b>Problem Solving</b>	Developing	This student’s solution displays a limited understanding of the underlying mathematical concepts of parallelism and congruency in quadrilaterals. Some of the solutions are relevant.
<b>Communication and Reasoning</b>	Emerging	This student’s communication does not provide evidence for reasoning that supports pairs of congruent sides or pairs of parallel sides. Instead, the student mostly refers to “doesn’t touch.” The student does not note explanations of congruency.
<b>Representations and Connections</b>	Developing	The student uses an incomplete or limited representation to model the problem, making only a partial mathematical connection between parallelism and quadrilaterals. The student does not seem to connect understanding of congruency to quadrilaterals.

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Student: G

Criteria	Performance Level (Advanced, Proficient, Developing, Emerging)	Rationale
<b>Mathematical Understanding</b>	Proficient	This student demonstrates an understanding of the relationship between pairs of parallel sides and pairs of congruent sides in quadrilaterals. The student is able to apply mathematical concepts and skills that lead to three valid and correct solutions.
<b>Problem Solving</b>	Proficient	The student's problem-solving strategy displays an understanding of the mathematical concepts of characteristics of quadrilaterals. The solution is relevant to the problem.
<b>Communication and Reasoning</b>	Developing	The student's reasoning contains some misconceptions and limited mathematical language. The student could move to "proficient" by clearly stating "pairs" of parallel and congruent sides.
<b>Representations and Connections</b>	Proficient	The student uses a representation to support reasoning, making a connection between parallelism/congruency and quadrilaterals.