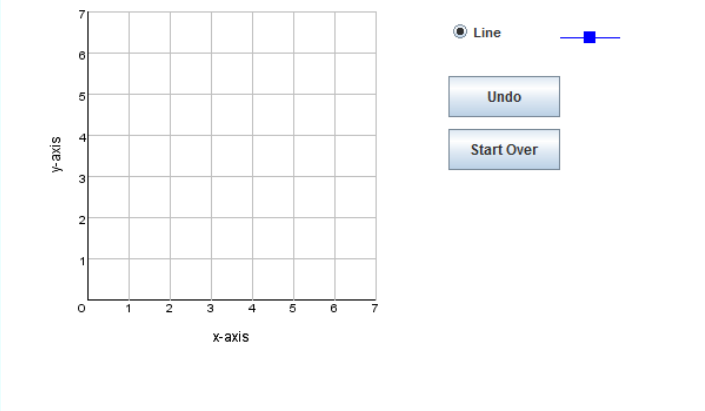
Part A

Each row of the table identifies a line containing a pair of points. Indicate whether each line represents a proportional relationship between x and y.

You may use the graphing tool by selecting two points. The line containing the two points will be automatically drawn. You can reset the tool by clicking "Start Over".

Be sure to indicate whether each line represents a proportional relationship or not by selecting the appropriate box in the table.

Line	Proportional Relationship	Not a Proportional Relationship
Line 1 containing (1, 3) and (2, 3)		
Line 2 containing (1, 2) and (2, 4)		
Line 3 containing (3, 1) and (6, 2)		
Line 4 containing (0, 2) and (5, 4)		
Line 5 containing (4, 4) and (5, 5)		



Part B

For the lines in Part A that do **not** represent a proportional relationship, explain why they do not.

For each line in Part A that does not represent a proportional relationship, describe how you would change the coordinates of one of the two given points on the line to create a proportional relationship.

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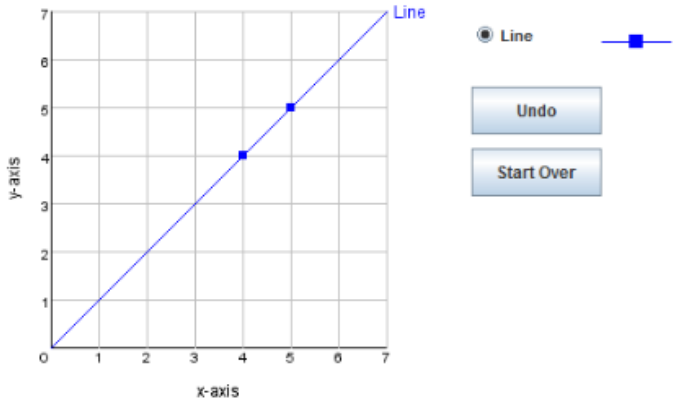
Grade 7	Proportional Relationships
Item Type	Type II – 3 points
Evidence Statement	7.C.4 with content scope of 7.RP.2a **7.C.4:** Base explanations/reasoning on a coordinate plane diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 7.RP.A
Most Relevant Standards for Mathematical Content	**7.RP.2a:** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. This standard is major content in the grade based on the PARCC Model Content Frameworks.
Most Relevant Standards for Mathematical Practice	MP.3 and MP.6 are stressed in the PARCC assessment design (MP.3 – Construct viable arguments and critique the reasoning of others and MP.6 – Attend to precision), and it enters here prominently as students are asked to explain how to make the non-proportional relationships into proportional relationships. The rubric requires students to use precise language in order to receive full credit for Part B. Students who use the graphing tool (MP.5) may look for structure to expedite the analysis of the five lines in Part A (MP.7).
Item Description and Assessment Qualities	This conceptual understanding task illustrates how students can test for equivalent ratios using a graphing tool and explain their reasoning with precision required at Grade 7. Students first show that they understand proportional relationships by deciding whether five lines are proportional. If they wish, there is graphing technology available that they could use to expedite the process. Then, students confirm their understanding by explaining how the two lines that do not represent proportional relationships could be changed so that they become proportional relationships. There are an infinite number of possible points that could satisfy this requirement and students must justify their new points using correct mathematical descriptions.



Note: The graphing tool will not be scored in this task.

Scoring Information

Task is worth 3 points. Task can be scored as 0, 1, 2, or 3.

Part A: This part is machine-scored and worth 1 point for a correct indication of whether each line represents a proportional relationship or not.

Line	Proportional Relationship	Not a Proportional Relationship
Line 1 containing (1, 3) and (2, 3)		✓
Line 2 containing (1, 2) and (2, 4)	✓	
Line 3 containing (3, 1) and (6, 2)	✓	
Line 4 containing (0, 2) and (5, 4)		✓
Line 5 containing (4, 4) and (5, 5)	✓	

Part B: This part is worth 2 points for reasoning.

Reasoning point 1: The student indicates that lines 1 and 4 do not represent a proportional relationship because in both lines, the *x* and *y* values of the two given points are in different ratios. Or, the student provides another valid response, such as, the lines do not contain the origin.

Reasoning point 2:

For line 1 to become a proportional relationship, either:

- the second point can be changed so that its *y*-coordinate is 3 times its *x*-coordinate (NOTE: Solutions include, but are not limited to: (0, 0); (2, 6); (3, 9); and ($\frac{1}{3}$, 1)) OR
- the first point can be changed so that its *y*-coordinate is $\frac{3}{2}$ of its *x*-coordinate (NOTE: Solutions include, but are not limited to: (0, 0); (4, 6); (6, 9); and (1, 1.5)).

For line 4 to become a proportional relationship, the only option is to

	change the first point, because it is on the *y*-axis. • The first point can be changed so that its *y*-coordinate is $\frac{4}{5}$ of its *x*-coordinate. (NOTE: Solutions include, but are not limited to: (0, 0); (10, 8); (15, 12); and ($\frac{5}{4}$, 1). Task score: The task score is the sum of the points awarded in each part. Note: If a student only identifies one of the two lines that are not in a proportional relationship, they may receive 1 point for correct reasoning shown in Part B.