| Task Model 1

**Response Type:
Equation/Numeric**

DOK Level 1

8.G.1
Verify experimentally the properties of rotations, reflections, and translations:
a. Lines are taken to lines, and line segments to line segments of the same length.
b. Angles are taken to angles of the same measure.
c. Parallel lines are taken to parallel lines.

Evidence Required:
1. The student verifies that rigid transformations preserve distance and angle measures.

Tools: Calculator | **Prompt Features:** The student is prompted to give the length or angle measure of a geometric figure after one rigid transformation.

Stimulus Guidelines:
• The distance formula should not be needed to find the length of the line segment.
• Angle measurements should be less than 180°.
• Item difficulty can be adjusted via these example methods:
  o Vary the type and number of transformations.
  o Provide graphics that illustrate the transformation.
  o Provide verbal descriptions of the transformation.
  o The length of an original line segment is provided or student calculates the length from coordinates.
  o The measure of an original angle is provided or student determines the angle measure.

TM1a
Stimulus: The student is presented with an image or description of a geometric object and one rigid transformation.

Example Stem 1: Line segment *DE* is translated left 3 units and down 2 units to form line segment *D'E'*.
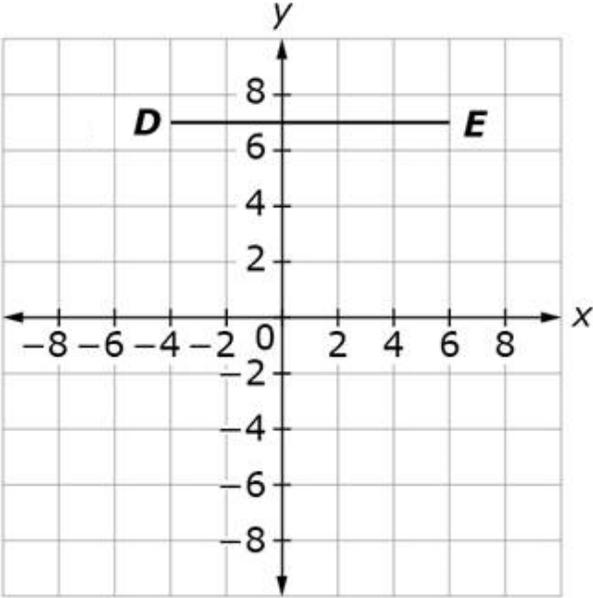
Enter the distance, in units, between point *D'* and point *E'*.

Example Stem 2: Line segment *FG* begins at (−2, 4) and ends at (−2, −3). The segment is translated left 3 units and up 2 units to form line segment *F'G'*.

Enter the length, in units, of line segment *F'G'*.

Rubric: (1 point) The student gives the correct measure (e.g., 10; 7).

Response Type: Equation/Numeric |

Task Model 1	**Prompt Features:** The student is prompted to verify that rigid transformations preserve congruency.

Task Model 1

Response Type: Matching Tables

DOK Level 1

8.G.1
Verify experimentally the properties of rotations, reflections, and translations:
a. Lines are taken to lines, and line segments to line segments of the same length.
b. Angles are taken to angles of the same measure.
c. Parallel lines are taken to parallel lines.

Evidence Required:
1. The student verifies that rigid transformations preserve distance and angle measures.

Tools: Calculator

Prompt Features: The student is prompted to verify that rigid transformations preserve congruency.

Stimulus Guidelines:
- The distance formula should not be needed to find the length of the line segment.
- Angle measurements should be less than 180°.
- Item difficulty can be adjusted via these example methods:
  - Vary the type and number of transformations.
  - Provide graphics that illustrate the transformation.
  - Provide verbal descriptions of the transformation.
  - The length of an original line segment is provided or student calculates the length from coordinates.
  - The measure of an original angle is provided or student determines the angle measure.

TM1b
Stimulus: The student is presented with two congruent figures on a coordinate plane and a description of a transformation.

Example Stem: Triangle ABC is reflected across the *x*-axis and then translated right 12 units to form triangle *A'B'C'*.
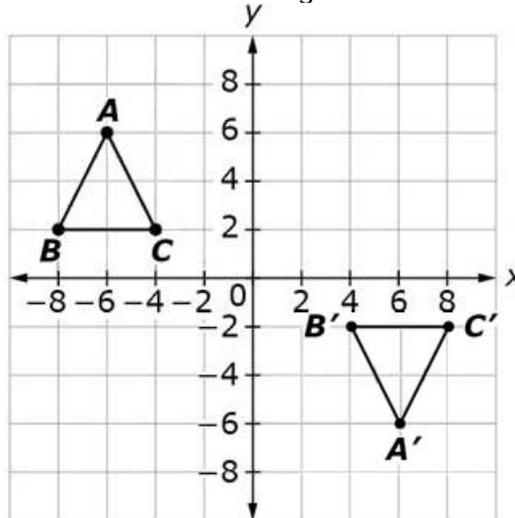
Select True or False for each statement.

Statement	True	False
Angle *B* has the same measure as angle *B'*.		
Side *AC* is longer than side *A'C'*.		
Side *BC* is the same length as side *B'C'*.		

Rubric: (1 point) The student correctly identifies all statements as True or False (e.g., T, F, T).

Response Type: Matching Tables

Task Model 1	**Prompt Features:** The student is prompted to match corresponding parts of figures after a rotation, reflection, and/or translation has been applied to a figure.

Task Model 1

Response Type: Matching Tables

DOK Level 1

8.G.1
Verify experimentally the properties of rotations, reflections, and translations:
a. Lines are taken to lines, and line segments to line segments of the same length.
b. Angles are taken to angles of the same measure.
c. Parallel lines are taken to parallel lines.

Evidence Required:
1. The student verifies that rigid transformations preserve distance and angle measures.

Tools: Calculator

Prompt Features: The student is prompted to match corresponding parts of figures after a rotation, reflection, and/or translation has been applied to a figure.

Stimulus Guidelines: Item difficulty can be adjusted via these example methods:
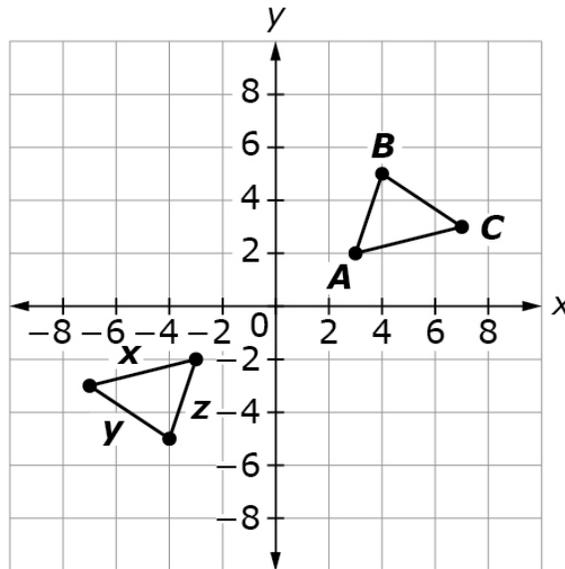- Varying the type and number of transformations
- Providing graphics that illustrate the transformation
- Providing verbal descriptions of the transformation
- The length of an original line segment may be provided or the student may need to calculate the length from coordinates.
- The measure of an original angle may be provided or student may need to determine the angle measure.

TM1c
Stimulus: The student is presented with two congruent figures on a coordinate plane and a description of a transformation.

Example Stem: Triangle ABC was created by joining points $A(3, 2)$, $B(4, 5)$, and $C(7, 3)$ with line segments.

Triangle ABC is reflected over the x-axis and then reflected over the y-axis to form the triangle where x, y, and z represent the lengths of the sides of the triangle.

Click in the table to show which side lengths are equal.

	x	**y**	**z**
AB			
AC			
BC			

	Rubric: (1 point) The student correctly matches the sides of both triangles (e.g., *AB* = *z*, *AC* = *x*, *BC* = *y*). **Response Type:** Matching Tables