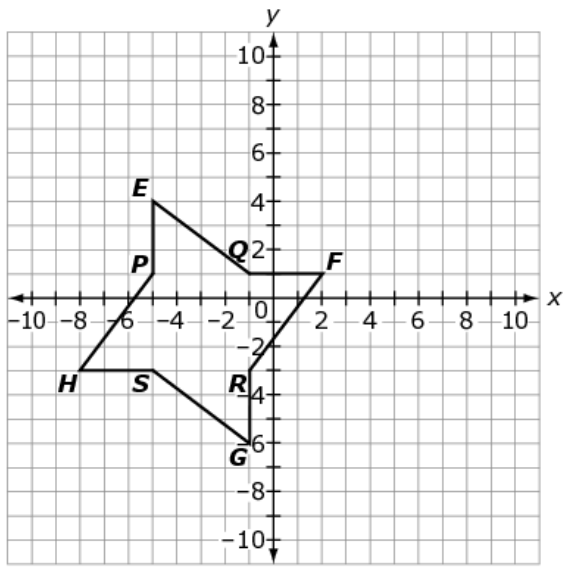
MAFS.912.G-CO.2.6 Also assesses MAFS.912.G-CO.2.7 Also assesses MAFS.912.G-CO.2.8	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. Explain how the criteria for triangle congruence (ASA, SAS, SSS, and Hypotenuse-Leg) follow from the definition of congruence in terms of rigid motions.
Item Types	Editing Task Choice – May require choosing text to complete a viable geometric argument. Equation Editor – May require creating an algebraic description for a transformation. GRID – May require constructing a transformed figure. Hot Text – May require reordering steps of a transformation or selecting text that proves congruence between triangles. Multiple Choice – May require selecting a value, an expression from a list, or from choices of transformations. Multiselect – May require identifying transformed figures. Open Response – May require justifying why two figures are congruent.
Clarifications	Students will use rigid motions to transform figures. Students will predict the effect of a given rigid motion on a given figure. Students will use the definition of congruence in terms of rigid motions to determine if two figures are congruent. Students will explain triangle congruence using the definition of congruence in terms of rigid motions. Students will apply congruence to solve problems. Students will use congruence to justify steps within the context of a proof.
Assessment Limits	Items may require the student to justify congruence using the properties of rigid motion. In items in which the line of reflection is given, any form of the line may be used. If the line is not a vertical line or a horizontal line, then the line of reflection should be graphed as a dotted line.

	Items should not require the student to use the distance formula. Items may require the student to be familiar with using the algebraic description $(x, y) \rightarrow (x + a, y + b)$ for a translation, and $(x, y) \rightarrow (kx, ky)$ for a dilation when given the center of dilation. Items may require the student to be familiar with the algebraic description for a 90-degree rotation about the origin, $(x, y) \rightarrow (-y, x)$, for a 180-degree rotation about the origin, $(x, y) \rightarrow (-x,-y)$, and for a 270-degree rotation about the origin, $(x, y) \rightarrow (y,-x)$. Items that use more than one transformation may ask the student to write a series of algebraic descriptions. Items should not use matrices to describe transformations.
Stimulus Attributes	Items may be set in a real-world or mathematical context. Items may require the student to determine the rigid motions that show that two triangles are congruent.
Response Attributes	Items may ask the student to name corresponding angles and/or sides. Items may require the student to use a function, e.g., $y = k(f(x + a)) + b$, to describe a transformation. In items in which the student must write the line of reflection, any line may be used. Items may require the student to be familiar with slope-intercept form of a line, standard form of a line, and point-slope form of a line. Items may require the student to name corresponding angles or sides. Items may require the student to determine the transformations required to show a given congruence. Items may require the student to list sufficient conditions to prove triangles are congruent. Items may require the student to determine if given information is sufficient for congruence. Items may require the student to give statements to complete formal and informal proofs.
Calculator	Neutral

Sample Item	Item Type
	Multiple Choice

Evelyn is designing a pattern for a quilt using polygon *EQFRGSHP* shown.



Evelyn transforms *EQFRGSHP* so that the image of *E* is at (2,0) and the image of *R* is at (6, – 7).

Which transformation could Evelyn have used to show *EQFRGSHP* and its image are congruent?

Ⓐ *EQFRGSHP* was reflected over the line $y = x + 2$.

Ⓑ *EQFRGSHP* was translated right 7 units and down 4 units.

Ⓒ *EQFRGSHP* was rotated 135 degrees clockwise about the point *Q*.

Ⓓ *EQFRGSHP* was rotated 90 degrees clockwise about the point (−3, – 1).