

Transformations Activity

1. Students solve 10 transformation questions.
2. Each correct answer unlocks a piece of the sweater creation.
3. If a student answers incorrectly, the answer box will turn red.

The screenshot shows a web browser window titled "All Transformations Ugly Sweater Competition". The browser's address bar shows "Last edit was 2 minutes ago". The page has a light blue header with the title "UGLY SWEATER COMPETITION" in large, bold, blue and black letters. Below the title are three tabs: "QUESTIONS", "ANSWERS", and "CUSTOMIZATION".

The "QUESTIONS" tab is active, displaying a question: "5. What direction is the triangle pointing when rotated 180° clockwise?". Below the question is a coordinate plane with a grid. A triangle is drawn with vertices at (1, 1), (2, 1), and (2, 2). The vertices are labeled 'I' at (1, 1), 'J' at (2, 1), and 'H' at (2, 2). The axes are labeled 'x' and 'y'.

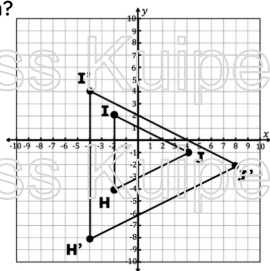
To the right of the question is a vertical list of 10 empty answer boxes, numbered 1 through 10. The "ANSWERS" tab is also visible, showing a similar list of 10 empty boxes.

The "CUSTOMIZATION" tab is active, displaying a preview of a pink sweater with white polka dots and a snowman wearing a black top hat with a red band. The sweater has the text "UGLY SWEATER COMPETITION" printed on it.

At the top right of the page, there are "DIRECTIONS" in small blue text: "Answer the questions below in any order. If you are correct, you will unlock different features of your design. If you are incorrect, your answer will turn red. After determining the various elements of your design, you will be able to customize your own unique ugly sweater! Once you answer questions six through ten, be on the lookout for customization options that will appear next to your answers. You will be able to choose the type of sweater, fabric color, character, design and additional features."

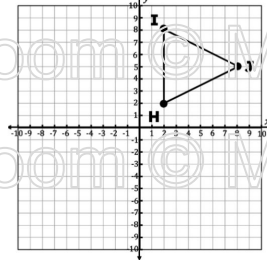
The problems are about single transformations: translations, reflections, rotations, and dilations. I created them with the intention to help students think flexibly about transformations. Check out some of the problems:

6. What is the scale factor used for this dilation?



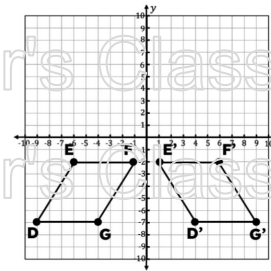
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5. What direction is the triangle pointing when rotated 180° clockwise?



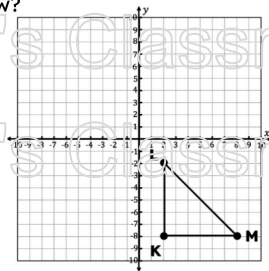
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4. What type of reflection is this?



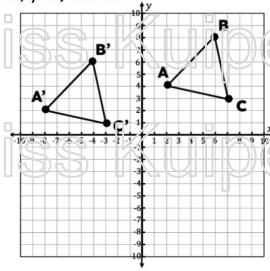
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8. When K is translated $(x-5, y+5)$, where is it now?



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2. Describe how the shape has been translated using $(x\pm\#, y\pm\#)$ notation.



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