Name_____ Date _____

CCSS 6.G.3

Facial Recognition

A computer with facial recognizing capabilities scans a female face in an attempt to identify her. Features of her face are assigned points on a coordinate grid and compared to existing data. Each unit represents 1 centimeter. The origin is the tip of her nose.

1. A scan reveals that the centers of her pupils and the corners of her lips form a polygon whose vertices are $(-3.2, 3.4)$, $(3.2, 3.4)$, $(3.2, -3)$ and $(-3.2, -3)$.

a. Draw the polygon in a coordinate plane. What type of shape is the polygon?

b. A computer file contains information on a person whose features described above form a polygon with an area of 40.96 square centimeters. Could it be the same person? Explain your reasoning.

2. The scan also reveals that the outer corner of her eyes are at $(-4.3, 3.4)$ and $(4.3, 3.4)$.

a. Draw the polygon formed by the outer corners of her eyes and corners of her lips in a coordinate plane. What type of shape is the polygon?

b. The features described above for the person in part (b) of Exercise 1 form a polygon with an area of 47.36 square centimeters. Could it be the same person? Explain your reasoning.

CCSS 6.G.3 Common Core State Standard

6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

CCSS 6.G.3 Grading Rubric

Answers	**Score**
1. a. Student draws a coordinate plane with appropriate scaling and plotted points; square	3
b. yes; The square in the scan also has an area of 40.96 square centimeters.	2
2. a. Student draws a coordinate plane with appropriate scaling and plotted points; trapezoid	3
b. no; The trapezoid in the scan has an area of 48 square centimeters.	2
Precision	
1. a. Student plots points in all four quadrants and recognizes the shape as a polygon.	2
b. Student finds the lengths of the sides and uses them to find and compare the areas.	2
2. a. Student plots points in all four quadrants and recognizes the shape as a polygon.	2
b. Student finds the lengths of the bases and height and uses them to find and compare the areas.	2
Total Points	**18**