



**7.G.1**

**I can draw similar figures using scale factor.**

**Homework:** Pg. 37-38 #'s 3, 5, 6

## 2

## Similar Figures

Zack and Marta want to design a computer game that involves several animated characters. They ask Marta's uncle, Carlos, a programmer for a video game company, about computer animation.

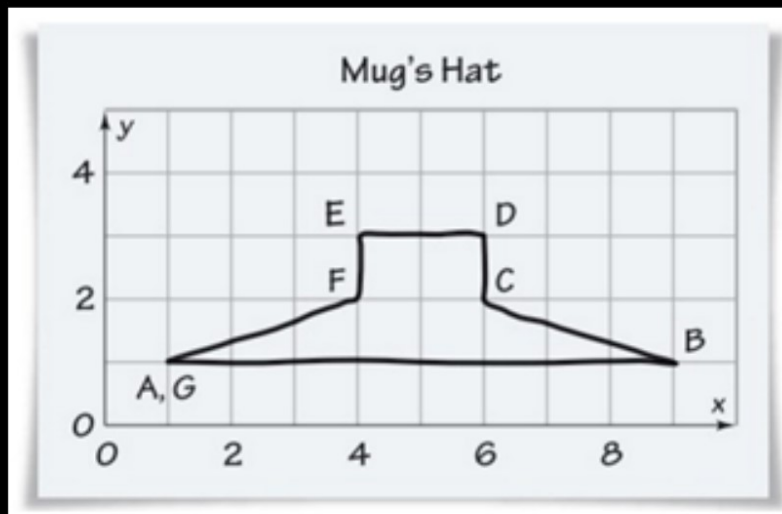
Carlos explains that the computer screen can be thought of as a grid made up of thousands of tiny points, called pixels. To animate a figure, you need to enter the coordinates of key points on the figure. The computer uses these points to draw the figure in different positions.

Sometimes the figures in a computer game need to change size. A computer can make a figure larger or smaller. You can give it a rule for finding key points on the new figure, using key points from the original figure.

## 2.2 Hats Off to the Wumps

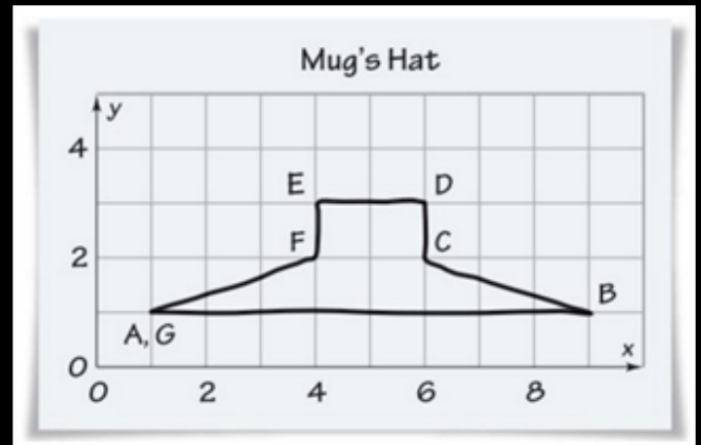
### Changing a Figure's Size

Zack and Marta's computer game involves a family called the Wumps. Mug Wump is the game's main character. Zack and Marta experiment with enlarging and reducing figures on a coordinate grid. Marta examines several rules for transforming Mug's hat into different sizes.



A. Using the coordinates of Mug's hat and the four new Hat rules, complete the table below.

	Mug's Hat	Hat 1	Hat 2	Hat 3	Hat 4
Rules	$(x, y)$	$(2x, 2y)$ multiply both by 2	$(3x, 3y)$ multiply both by 3	$(2x, 4y)$ multiply $x$ by 2, $y$ by 4	$(0.5x, 0.5y)$ multiply both by 0.5
A	(1, 1)				
B	(9, 1)				
C	(6, 2)				
D	(6, 3)				
E	(4, 3)				
F	(4, 2)				
G	(1, 1)				



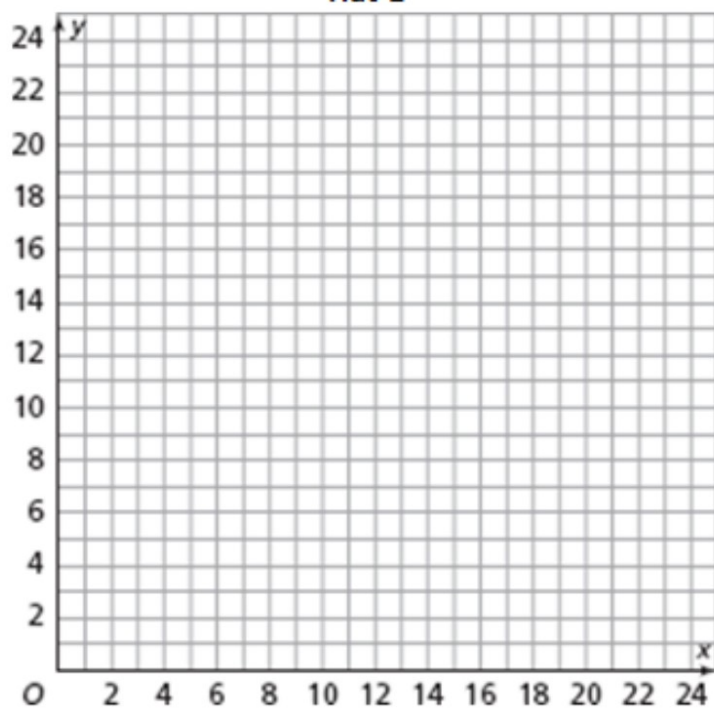
# Class Work Answers:

A.

	Mug's Hat	Hat 1	Hat 2	Hat 3	Hat 4
Point	$(x, y)$	$(2x, 2y)$ multiply both by 2	$(3x, 3y)$ multiply both by 3	$(2x, 4y)$ multiply $x$ by 2, $y$ by 4	$(0.5x, 0.5y)$ multiply both by 0.5
A	(1, 1)	(2, 2)	(3, 3)	(2, 4)	(0.5, 0.5)
B	(9, 1)	(18, 2)	(27, 3)	(18, 4)	(4.5, 0.5)
C	(6, 2)	(12, 4)	(18, 6)	(12, 8)	(3, 1)
D	(6, 3)	(12, 6)	(18, 9)	(12, 12)	(3, 1.5)
E	(4, 3)	(8, 6)	(12, 9)	(8, 12)	(2, 1.5)
F	(4, 2)	(8, 4)	(12, 6)	(8, 8)	(2, 1)
G	(1, 1)	(2, 2)	(3, 3)	(2, 4)	(0.5, 0.5)

B. Plot each new hat on a separate coordinate grid and connect each point as you go.

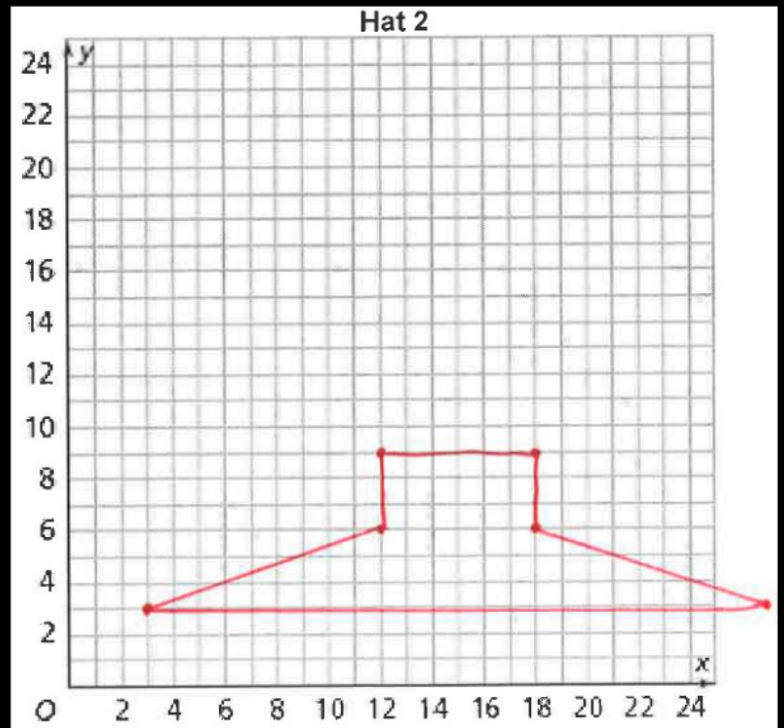
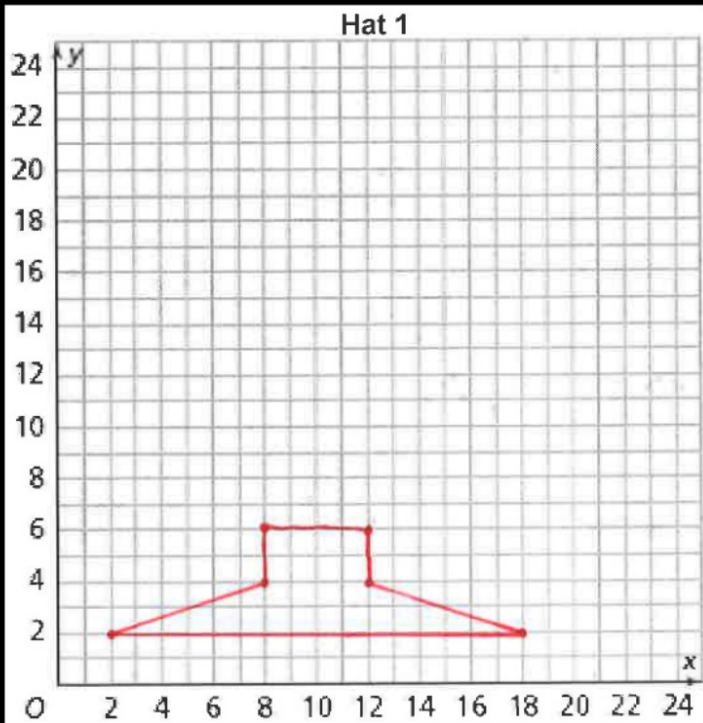
**Hat 1**



	Mug's Hat	Hat 1
Point	$(x, y)$	$(2x, 2y)$ multiply both by 2
A	(1, 1)	(2, 2)
B	(9, 1)	(18, 2)
C	(6, 2)	(12, 4)
D	(6, 3)	(12, 6)
E	(4, 3)	(8, 6)
F	(4, 2)	(8, 4)
G	(1, 1)	(2, 2)

# Class Work Answers:

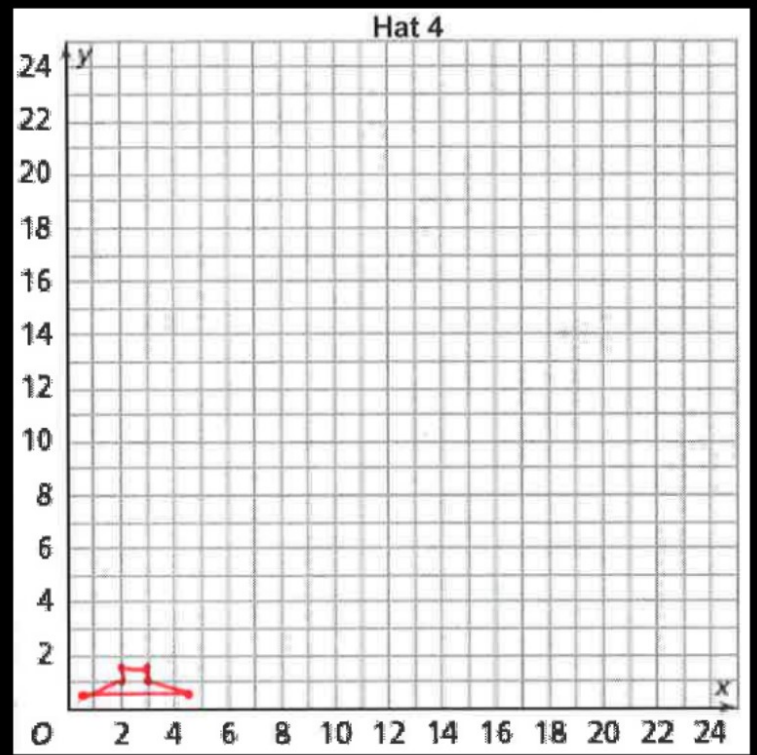
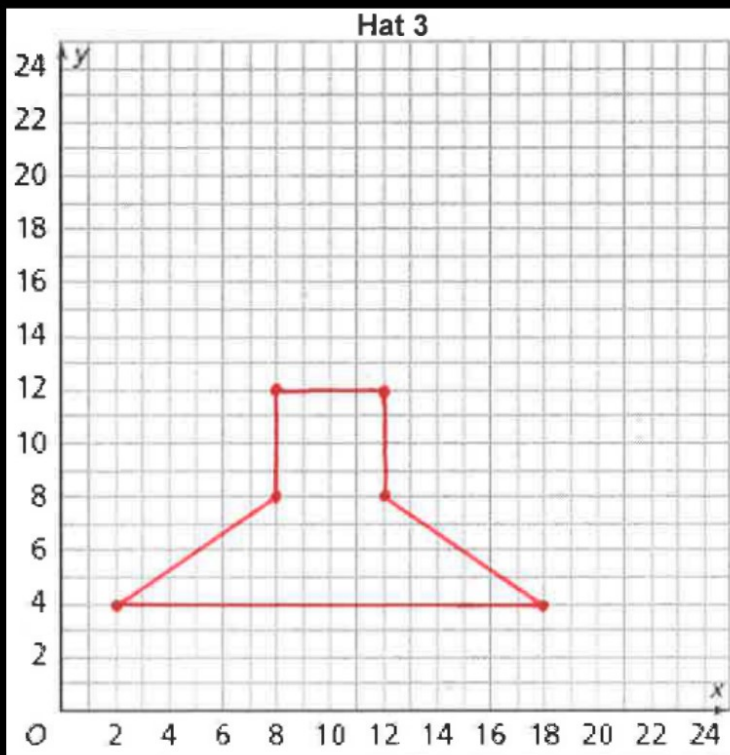
B.





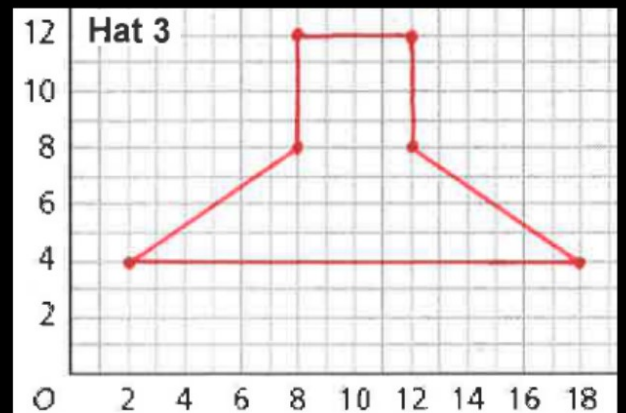
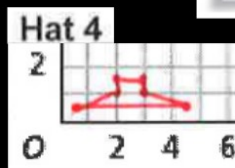
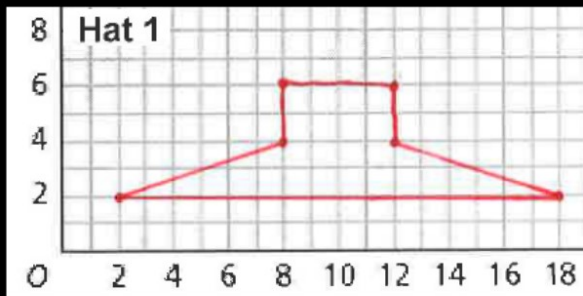
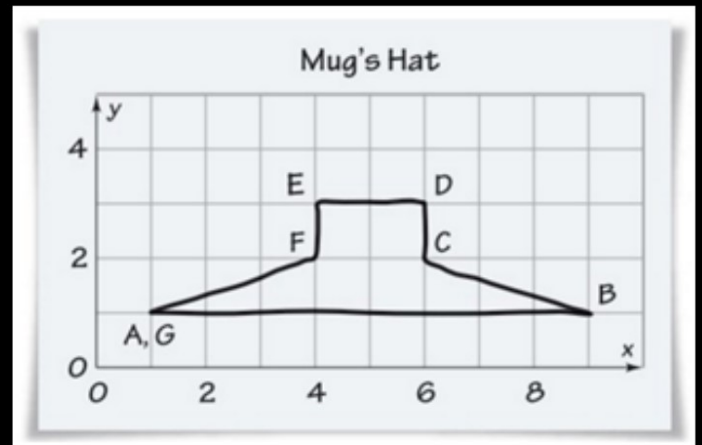
# Class Work Answers:

B.





C. Compare the angles and side lengths of the graphed Hats 1, 2, 3, and 4 to Mug's Hat. Which are similar to Mug's Hat? How do you know?



## **Class Work Answers:**

- C.** Hats 1, 2, and 4 are similar to Mug's Hat, because they were multiplied by the same amount horizontally and vertically.

# **Homework:**

**p.37-38 #3, 5, 6**