Name: _____

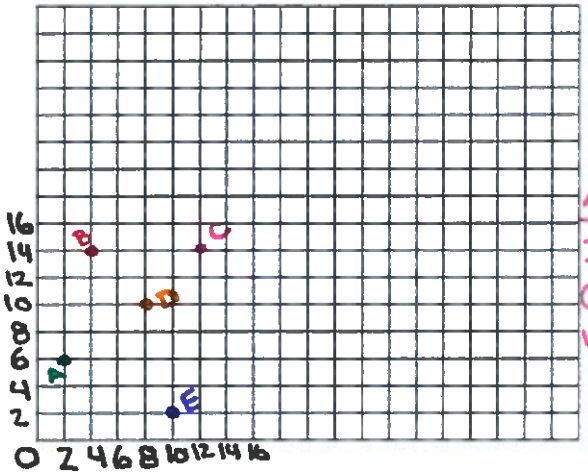
Class: _____

Show What You Know
Transformations and Coordinates

1. Draw and label a coordinate grid.

a) Plot each point on the grid. What scale will you use? Explain your choice

A(2,6) B(4,14) C(12,14) D(8,10) E(10,2)



Scale

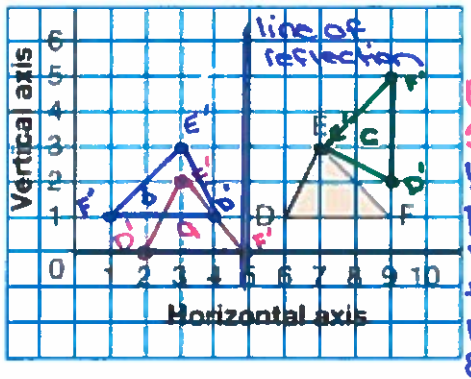
I used the scale 1 square represents 2 units because each coordinate is divisible by 2.

2. Copy ΔDEF on a coordinate grid. For each transformation below:
- draw the image after the transformation
- write the coordinates of the vertices of the image
- describe how the positions of the vertices of the triangle have changes

a) translation of 4 squares left and 1 square down

b) a reflection in the vertical line through the horizontal axis at 5

c) a 90° counterclockwise rotation about vertex E



a.) Coordinates
D'(2,0) E'(3,2) F'(5,0)
Each vertex moved 4 squares left and 1 square down.

b.) Coordinates
D'(4,1) E'(3,3) F'(1,1)
Vertex D moved 2 squares left to D'. Vertex E moved 4 squares left to E'. Vertex F moved 8 squares left to F'.

C.) Coordinates
D'(9,2) E'(7,3) F'(9,5)
Vertex D moved 3 squares right and 1 up to D'. E stayed. Vertex F moved 4 squares up to F'.

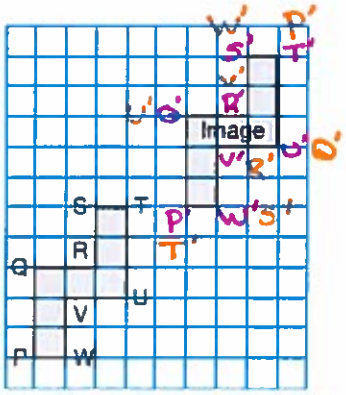
Name: _____

Class: _____

3. a) Describe as many different single transformations as you can that move the octagon to its image

A translation 5 squares right and 5 squares up.

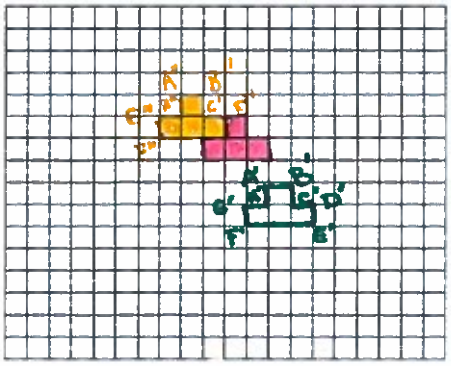
A 180° rotation about the point 1 square to the right of T.

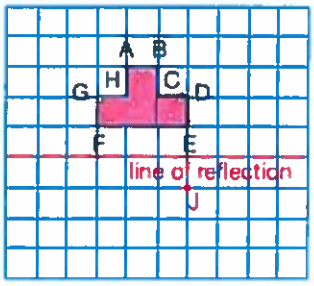


b) For each transformation, label the vertices of the image.

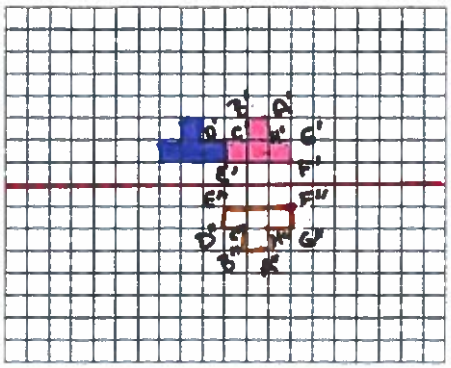
4. Draw and label both images each time.

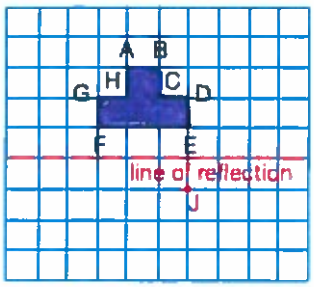
a) Translate the octagon 2 squares right and 3 squares down. The translate the image 4 squares left and 4 squares up.





b) Reflect the octagon in a line through DE. Then reflect the image in the given line of reflection.

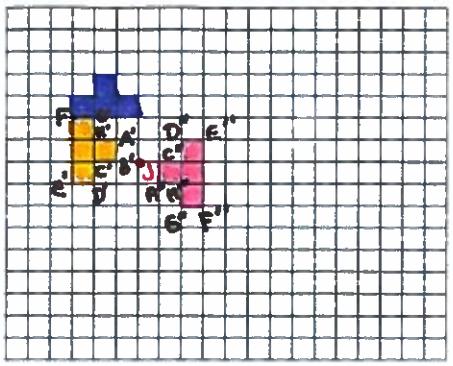




Name: _____

Class: _____

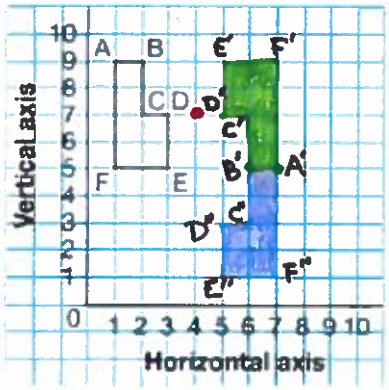
c) Rotate the octagon 90° clockwise about point F. Then rotate the image 180° about point J.



d) What can you say about the octagon and all of its images?

They are congruent

5. a) Rotate the hexagon 180° about (4,7). Then reflect the rotation image in a line through FE. Draw and label both images.

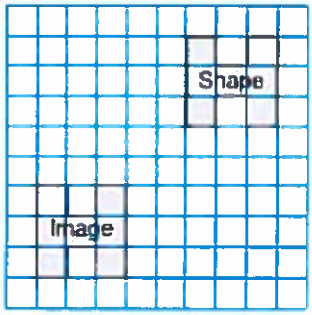


b) What are the coordinates of the vertices of the final image?

A'(7,5) B'(6,5) C"(6,3)
D"(5,3) E"(5,1) F"(7,1)

6. a) Describe two successive transformations that move the shape to its image.

Reflection in the horizontal line through the centre of the grid, followed by a reflection in the vertical line through the centre of the grid.



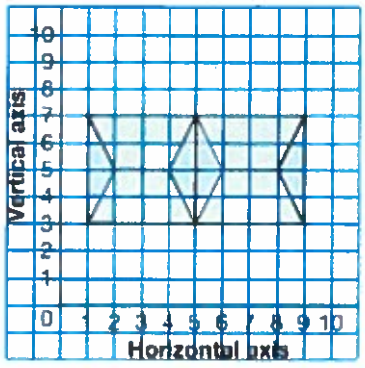
b) Find as many pairs of transformations as you can.

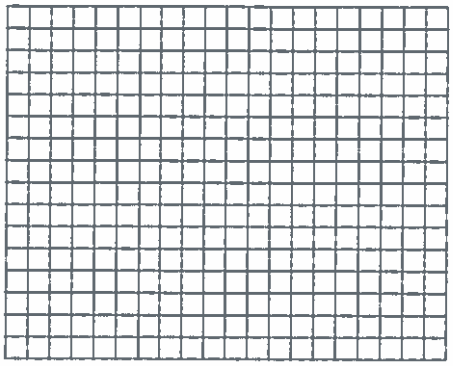
- Reflection in horizontal line through centre of grid followed by a translation 5 squares left.
- Reflection in the vertical line through centre of grid followed by a translation 5 squares down.
- 180° rotation about the bottom left vertex followed by a translation 2 squares left and 2 squares down.

Name: _____

Class: _____

7. This design was formed by repeatedly transforming 2 shapes.





a) Copy the design. Identify 2 original shapes.

Triangle Trapezoid

b) Describe the transformations that could have been used to create the design. Trapezoid A was reflected in its top side to get Image B
Image B was translated 4 squares right to get Image C.
Image C was reflected in its bottom side to get Image D.
Triangle E was reflected in the vertical line through horizontal axis at 3 to get Image F.
Image F was reflected in its vertical side to get Image G
Image F was translated 4 squares right to get Image H

c) Is another set of transformations possible? If your answer is yes, describe the transformations. Yes.
Shape A is rotated 180° about point (3,5) to get Image B.
Shape A and Image B are reflected in the vertical line through the horizontal axis at 3 to get Image C and D.
Triangle E is rotated 180° about point (3,5) to get Image F. Image F rotated 180° about (5,5) to get Image G. G is rotated 180° about (7,5) to get Image H.

d) Use the 2 original shapes and transformations to make a different design. Describe the transformations you used. Answers will Vary.