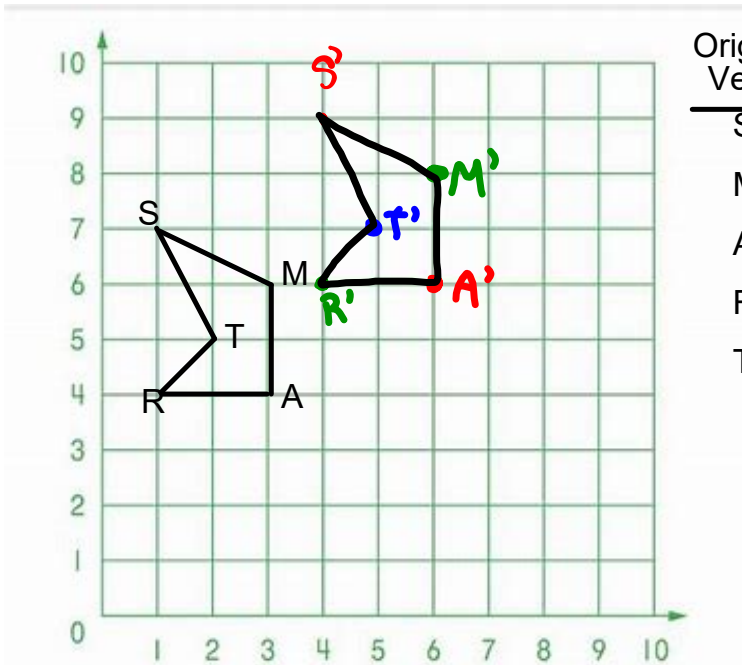Lesson 2 Day 1.5

Warm Up Grade 6
Ch. 8 Transformations
Date: May 17

Translate the shape up 2, right 3.
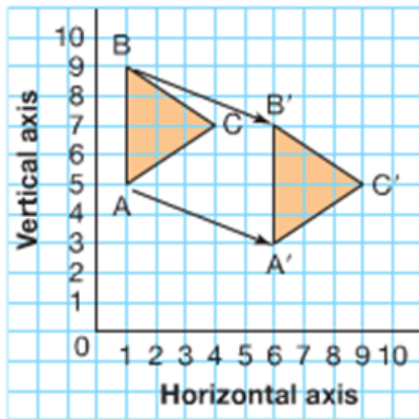

Original Vertices	New Vertices
S (1,7)	S' (4,9)
M (3,6)	M' (6,8)
A (3,4)	A' (6,6)
R (1,4)	R' (4,6)
T (2,5)	T' (5,7)

June 4   (Provincial)

P 2, 3, 4
  ↓   ↓   ↓
 Fr Math LA

Remember

Translation (slide) – slides a shape from one location to another. A translation arrow joins matching points on the shape and its image.

Given by direction and amount of blocks

This image ABC is translated

Down 2, Right 5

That means every vertex is in original is moved the same direction

New image has prime symbol on vertices '

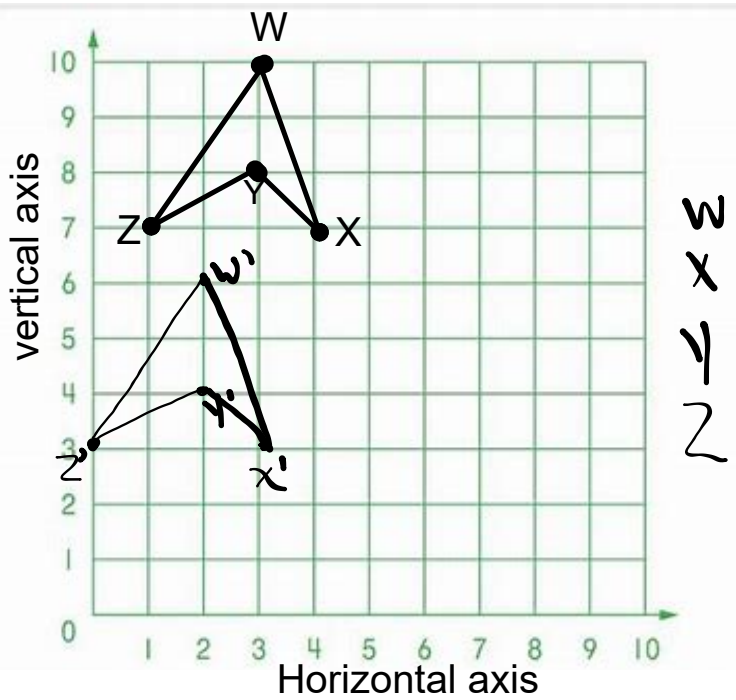Write the coordinates for WXYZ and the translated shape

W(__, __)

X(__, __)

Y(__, __)

Z(__, __)

Translate shape D4, left 1
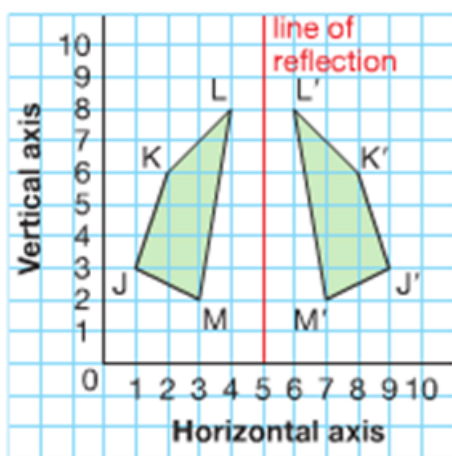
W (3,10)   W' (2,6)
X (4,7)   X' (3,3)
Y (3,8)   Y' (2,4)
Z (1,7)   Z' (0,3)

Reflection (Flip) – Reflects a shape in a **line of reflection** to create a reflection image.
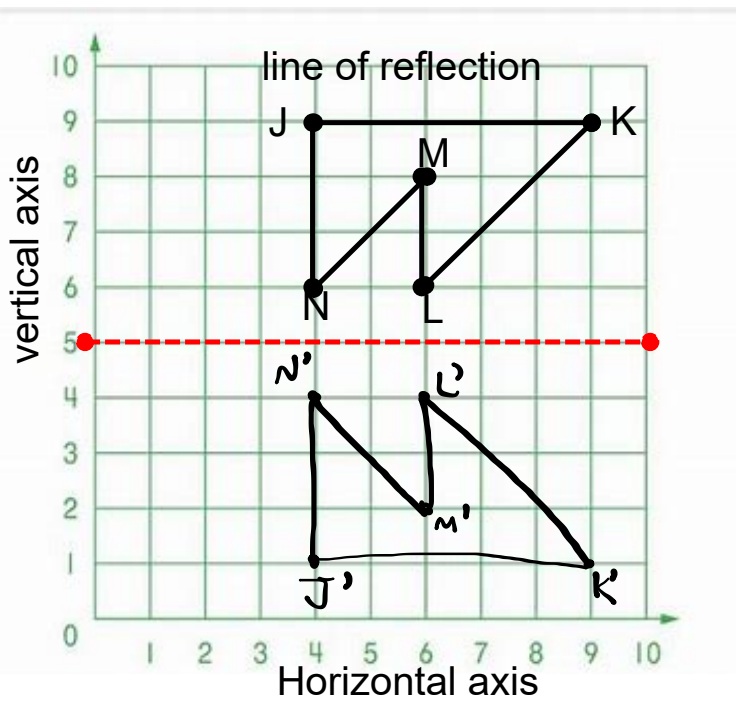
-face opposite ways

- keep the vertices the same distance from the mirror

Write the coordinates for JKL and the translated shape
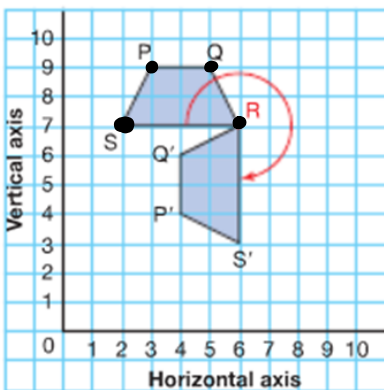
J(__, __)

K(__, __)

L(__, __)

line of reflection

vertical axis

Horizontal axis

Reflect the shape JKLMN across red line of reflection name new shape J'K'L'M'N'

Rotation (turn) – turns a shape about a point of rotation in a given direction.

-We trace the original shape and rotate then paper. Poke holes at the vertices and redraw.

-will be given point of rotation in grade 6

So, we can name fractions of turns in degrees.

A rotation can be clockwise or counterclockwise.

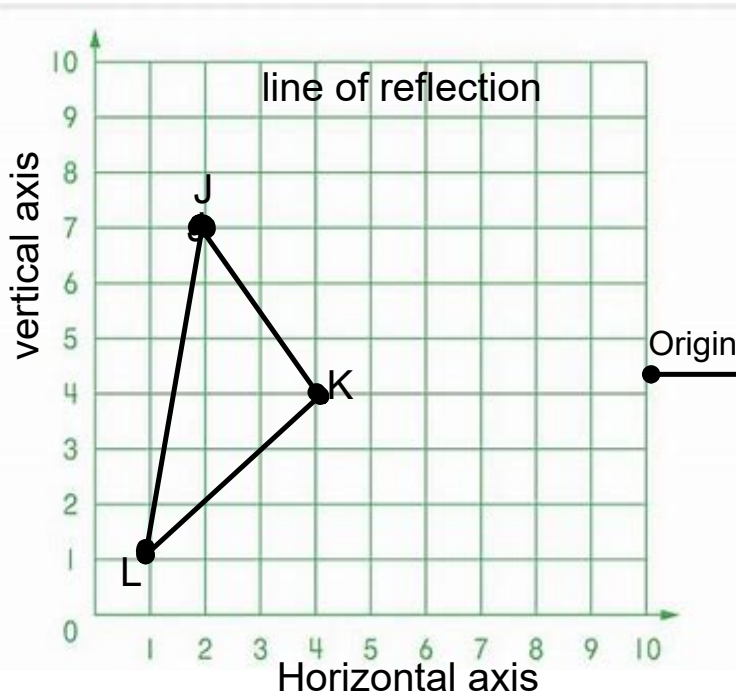A $\frac{1}{4}$ turn is a 90° rotation.

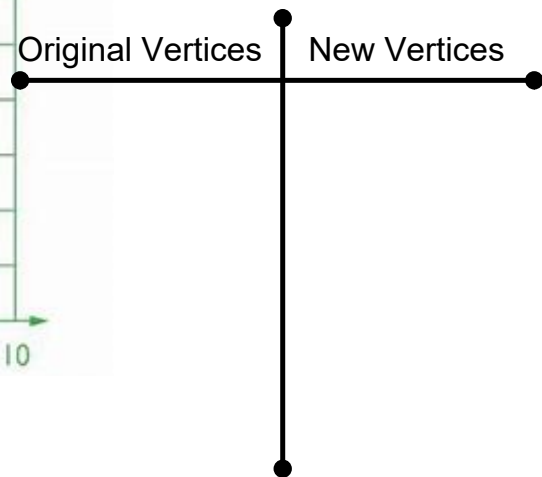A $\frac{1}{2}$ turn is a 180° rotation.

A $\frac{3}{4}$ turn is a 270° rotation.

Above trapezoid PQRS is rotated about vertex R, 270°. or 3/4 turn

To give image P'Q'RS' (Notice R is the same)

line of reflection

vertical axis

J
K
L

Horizontal axis

Rotate JKL about rotation point J, 3/4 turns. (270°)

Original Vertices | New Vertices

Class/Homework

page 298-299

#1 use grid paper NO MIRA

 #2ab,

#3,

red

Test May 29

provincial June 4

coordinates flip
for diagono

Practice ·

Use tracing paper or a Mira when it helps.

1. Copy this triangle on a grid.
   a) Draw the image of △DEF after the translation
      6 squares left and 1 square down.
   b) Write the coordinates of the vertices
      of the triangle and its image.
      How are the coordinates related?
   c) Another point on this grid is G(10, 2).
      Use your answer to part b to predict the
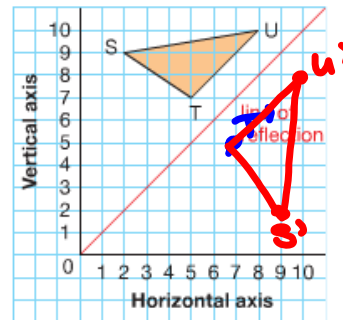   coordinates of point G′ after the same
      translation.
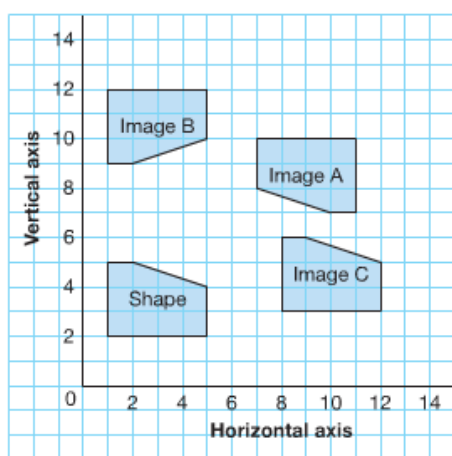
D (6, 10)
   -6 -1
D′ (0, 9)

2. Copy this triangle on a coordinate grid.
  a) Draw the image of △STU after a reflection
  in the line of reflection.
  b) Write the coordinates of the vertices of the triangle
  and its image. Describe how the positions
  of the vertices of the shape have changed.
  c) Another point on this grid is V(4, 3).
  Predict the location of point V′
  after a reflection in the same line.
  How did you make your prediction?

3. This diagram shows a shape and its image
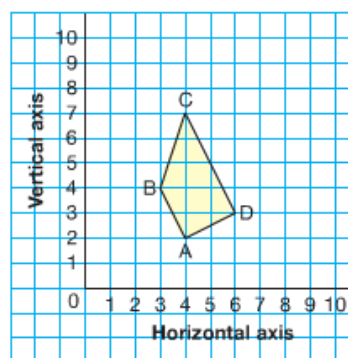   after 3 different transformations.
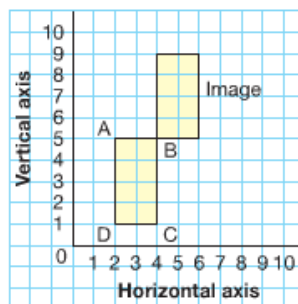

Identify each transformation.
Explain how you know.
a) the shape to Image A
b) the shape to Image B
c) the shape to Image C

4. Copy this quadrilateral on a coordinate grid.
   Trace the quadrilateral on tracing paper.
   Draw the image of the quadrilateral after
   each rotation below.
   Write the coordinates of the vertices.
   a) 90° clockwise about vertex B
   b) 270° clockwise about vertex B
   c) 270° counterclockwise about vertex B

5. Copy the rectangle and its image on
   a coordinate grid.
   a) Describe as many different transformations
      as you can that move the rectangle to its image.
   b) For each transformation:
      • Label the vertices of the image.
      • Describe how the positions of the vertices
        of the rectangle have changed.

6. A quadrilateral has these vertices:
   Q(5, 2), R(4, 5), S(9, 4), T(6, 3)
   Draw the quadrilateral on a coordinate grid.
   For each transformation below:
   • Draw the image.
   • Write the coordinates of the vertices
     of the image.
   • Describe how the positions of the vertices
     of the quadrilateral have changed.
   a) a translation of 3 squares left and 1 square down
   b) a rotation of 90° clockwise about vertex S
   c) a reflection in the horizontal line through the
      vertical axis at 6

7. Copy this pentagon on a coordinate grid.
Write the coordinates of each vertex.
For each transformation below:
  • Draw the image.
  • Write the coordinates of the vertices of the image.
  • Describe how the positions of the vertices
    of the pentagon have changed.
a) a translation 2 units right and 3 units up
b) a reflection in the vertical line through
   the horizontal axis at 5
c) a rotation of 90° counterclockwise about P