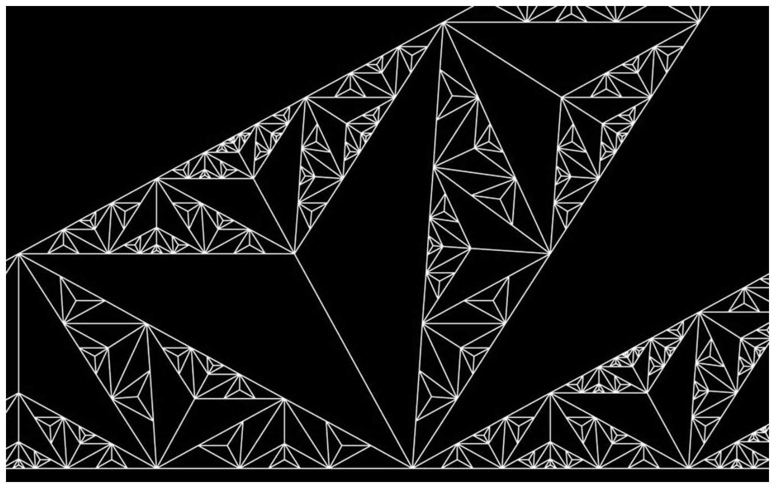
Todays Essential Question:

How can coordinate rules help with transformations on a coordinate graph?



Classwork: These slides, not from text book

Homework: 1-126 to 1-133

September 06, 2017

Check in

a. Translate ΔABC left 3 and down 5

b. Reflect ΔABC across the x-axis

c. Reflect ΔABC across the y-axis

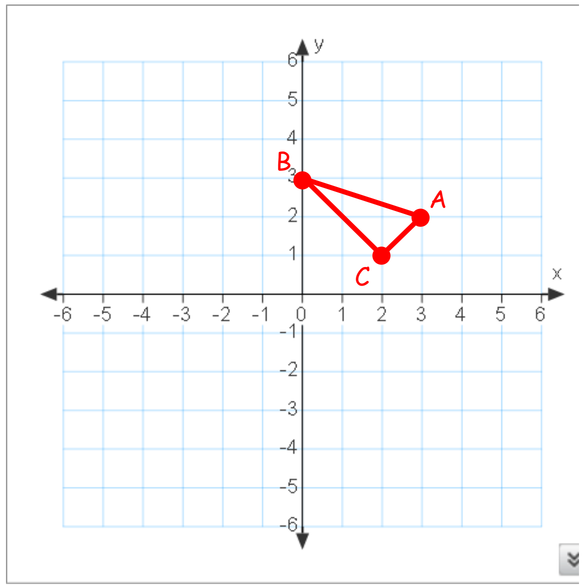
d. Reflect ΔABC across the line $y = -x$

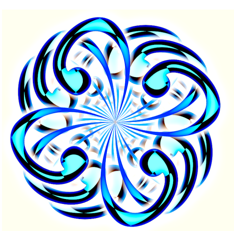
e. Rotate ΔABC 90° clockwise about the origin

f. Rotate ΔABC 180° counterclockwise about point A

g. Dilate ΔABC by a factor of 2 with respect to the origin

h. Dilate ΔABC by a factor of ½ with respect to the origin





Rotations

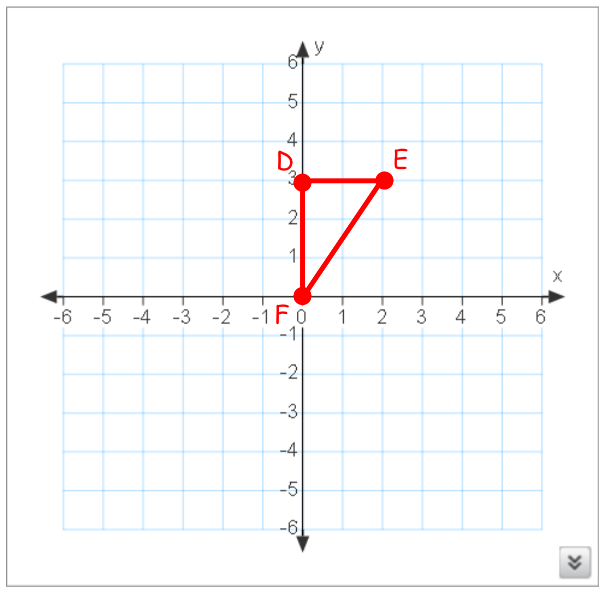
Write the coordinates of point E. Rotate ΔDEF counterclockwise 90°, 180°, and 270° about the origin and record the coordinates of the new point E each time. What do you notice about the coordinates?

E (,   )

E' (,   )

E'' (,   )

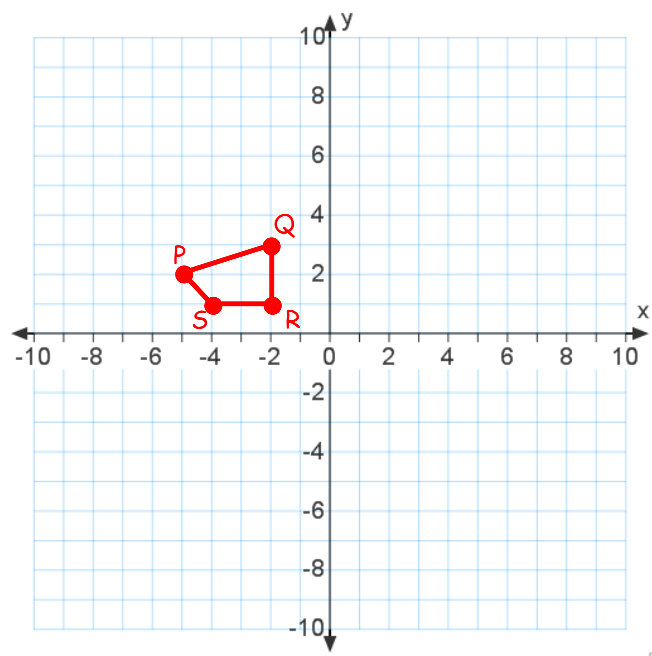
E''' (,   )



Coordinate Rule Example

Coordinate Rule: $(x, y) \rightarrow (-2y, 2x)$

$P(-5,3) \rightarrow$ ________________



Coordinate Rule Example

a. $(x, y) \rightarrow (-x, y)$

b. $(x, y) \rightarrow (x, -y)$

c. $(x, y) \rightarrow (-y, x)$

d. $(x, y) \rightarrow (-x, -y)$

e. $(x, y) \rightarrow (y, -x)$

f. $(x, y) \rightarrow (y, x)$

g. $(x, y) \rightarrow (x + 3, y - 5)$

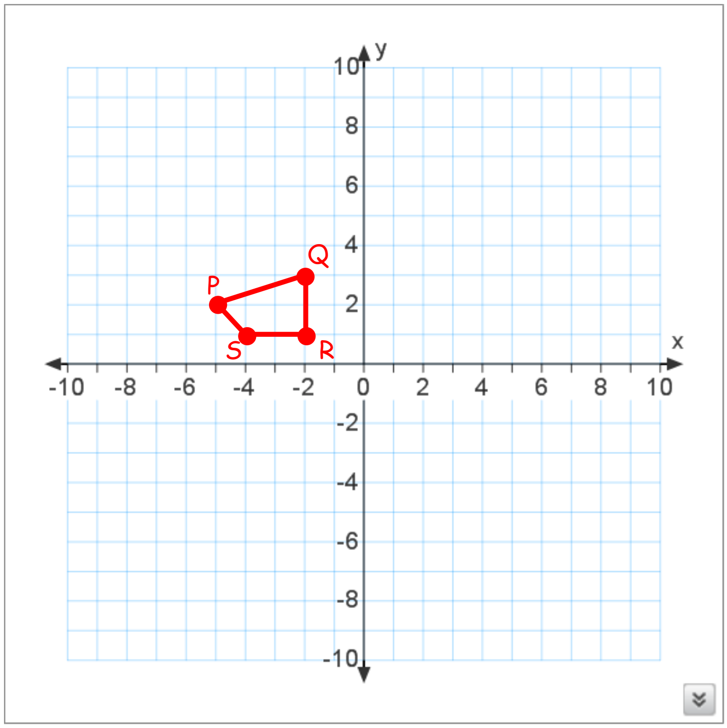
h. $(x, y) \rightarrow (2x, 2y)$

i. $(x, y) \rightarrow (2x + 3, 2y - 5)$

j. $(x, y) \rightarrow (2y, 2x)$

k. $(x, y) \rightarrow (2y + 3, 2x - 5)$

l. $(x, y) \rightarrow (2y + 3, -2x + 5)$



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Match each description with its coordinate rule.

a.	Translate (shift) a horizontal units and b vertical units	1.	$(x, y) \rightarrow (-x, y)$
b.	Reflect across the x-axis	2.	$(x, y) \rightarrow (x, -y)$
c.	Reflect across the y-axis	3.	$(x, y) \rightarrow (y, -x)$
d.	Reflect across the line y = x	4.	$(x, y) \rightarrow (-y, x)$
e.	Rotate 90° counterclockwise (or 270° clockwise) about the origin	5.	$(x, y) \rightarrow (-x, -y)$
f.	Rotate 180° counterclockwise (or 180° clockwise) about the origin	6.	$(x, y) \rightarrow (x + a, y + b)$
g.	Rotate 270° counterclockwise (or 90° clockwise) about the origin	7.	$(x, y) \rightarrow (cx, cy)$
h.	Dilate with respect to the origin by a factor of c	8.	$(x, y) \rightarrow (y, x)$

Normal 90° 180° 270°

5. Without looking at your notes, describe the transformation(s) that would occur for each of the following coordinate rules.

a. $(x, y) \rightarrow (-x, y)$ b. $(x, y) \rightarrow (3x, 3y)$ c. $(x, y) \rightarrow (\frac{1}{4}y, \frac{1}{4}x)$

6. Write the coordinate rule for each transformation or set of transformations.

a. Reflect across the x-axis

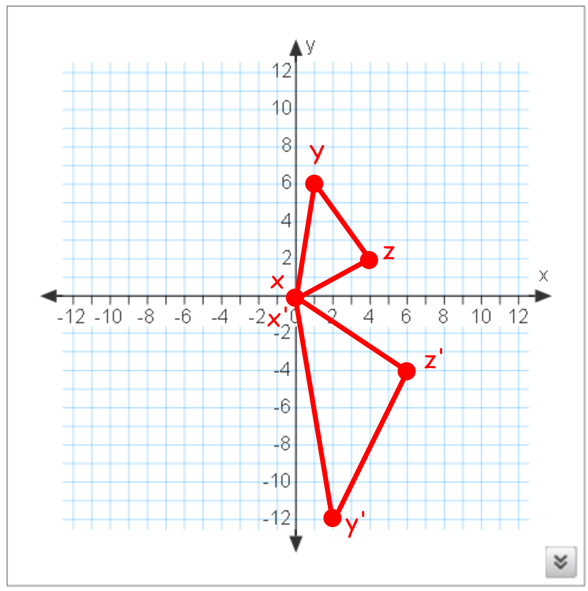
b. Translate right 8 and up 3

c. Dilate by a factor of 10

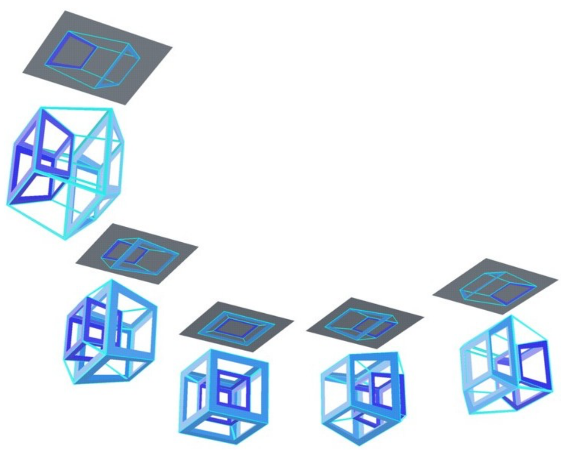
d. Reflect across the line y = x and dilate by a factor of 7

e. Dilate by a factor of 3 and translate down 5 and left 1

7. What does the coordinate rule (x, y) → (-y, -x) do? Use one of the figures from this lesson or ma your own figure to test your conjecture by using the rule.



8. Write a coordinate rule that would transform Figure XYZ into Figure X′Y′Z′, and name the transformation(s).



Homework: 1-126 to 1-133