Unit 5
Transformations in the Coordinate Plane

Translations

$$(x, y) \rightarrow (x + 5, y - 5)$$

right 5, down 5

$$(x, y) \rightarrow (x - 5, y + 5)$$

left 5, up 5

Reflections

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

over $x-$axis

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

over $y-$axis

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

over $y = x$

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

over $y = -x$

over $y = \#$ or $x = \#$ count

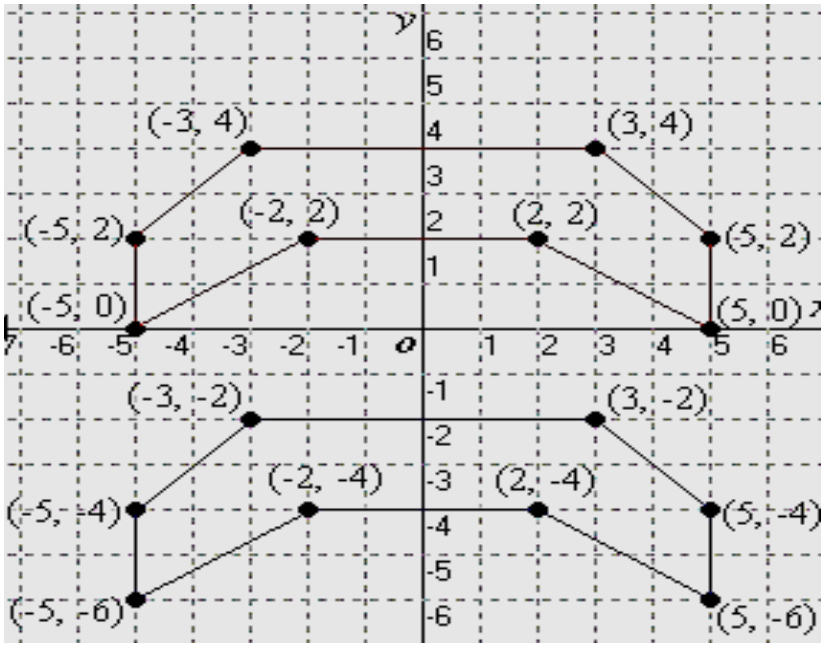
Rotations

90°CW $(x, y) \rightarrow (y, -x)$ 270°CCW

270°CW $(x, y) \rightarrow (-y, x)$ 90°CCW

180°CW $(x, y) \rightarrow (-x, -y)$ 180°CCW

Question 1



The top shape (pre image) has been translated to the bottom shape (image). Which rule represents the translation?

a) $(x^1, y^1) = (x, y - 6)$

c) $(x^1, y^1) = (x - 6, y)$

b) $(x^1, y^1) = (x - 4, y - 4)$

d) $(x^1, y^1) = (x - 6, y - 6)$

Question 2

If the result of

$(x, y) \rightarrow (x - 4, y + 3)$ is $A'(-2, 8)$, what is the **pre-image**, or A?

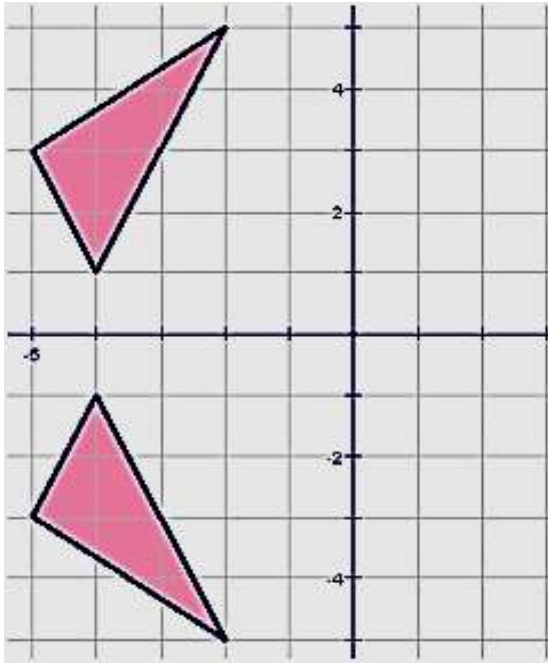
$A(2,5)$

Question 3

If A(4, -9) is translated using the rule, $(x, y) \rightarrow (x+5, y-7)$ what is the **image**, or A'?

$A'(9, -16)$

Question 4



Which best describes the transformation that occurs in the graph?

a) dilation

c) rotation

b) reflection

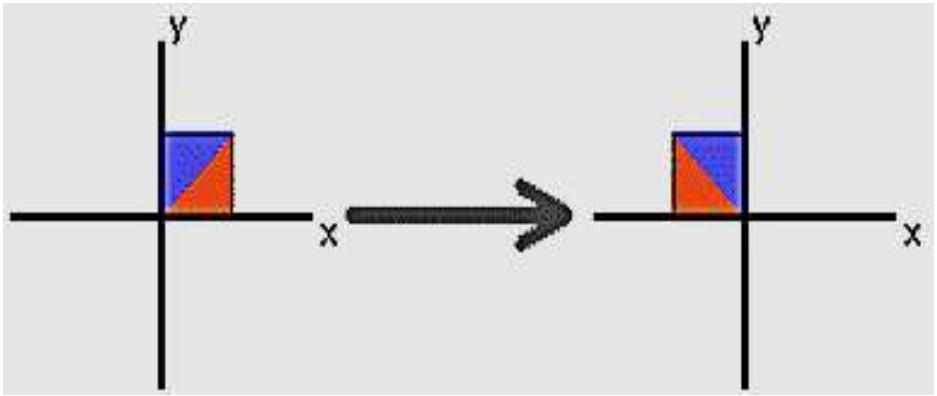
d) translation

Question 5

A triangle in the coordinate place has coordinates of (2, 3), (-4, -5), and (-2, 4). It is **reflected** about the **x-axis**.
What are the new coordinates?

$(2,-3),(-4,5)$, and $(-2,-4)$

Question 6



The figure on the left has been transformed to the figure on the right. Which transformation does this show?

a) $(x^1, y^1) = (y, x)$

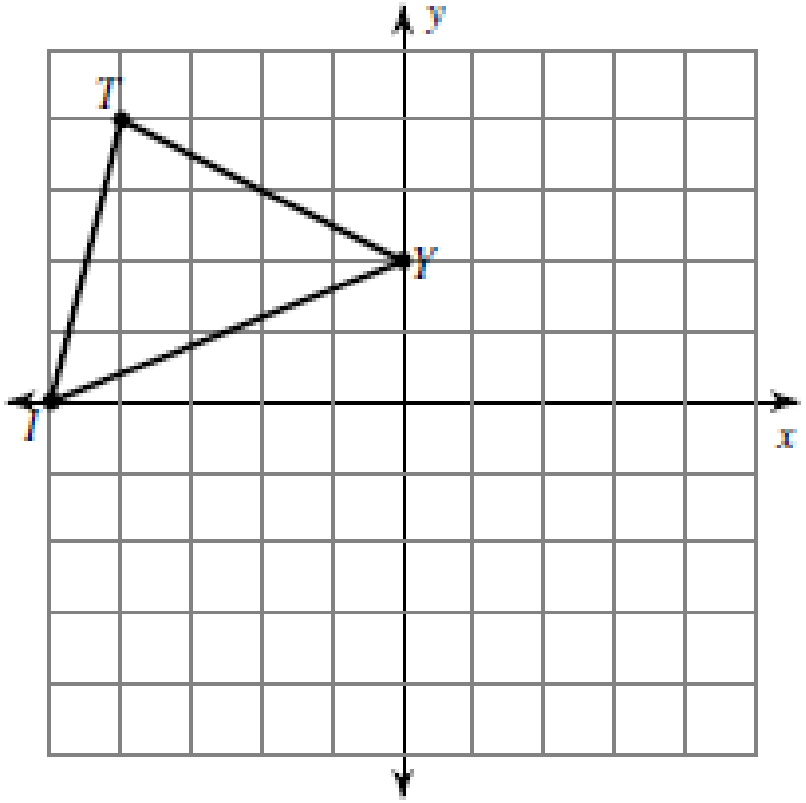
c) $(x^1, y^1) = (-x, y)$

b) $(x^1, y^1) = (x, -y)$

d) $(x^1, y^1) = (-x, -y)$

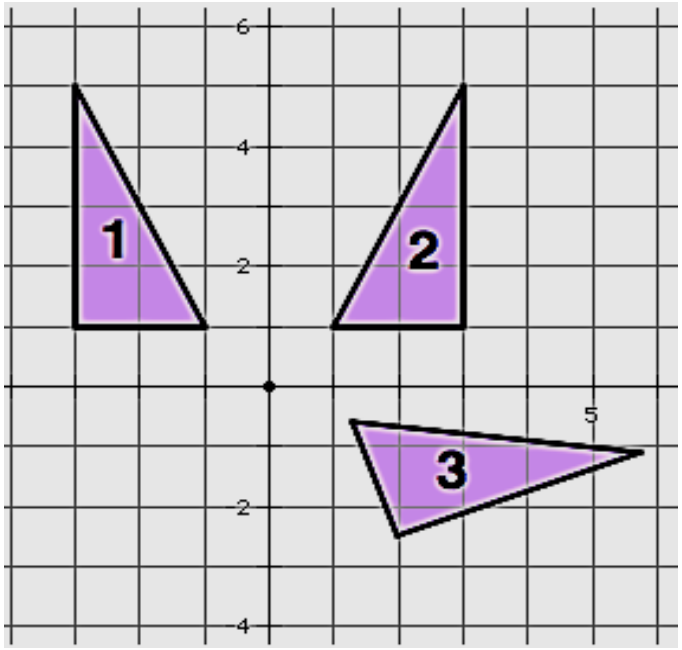
Question 7

Reflect the figure across x=1.
What is the image of T?



$T'(6,4)$

Question 8



The figure is transformed as shown in the diagram.
Describe the transformation

a) dilation, then reflection

c) reflection, then rotation

b) rotation, then reflection

d) translation, then reflection

Question 9

Rotate the point K(5,-6) 270° Clockwise about the origin. what is the **image**, or K'?

$K'(6,5)$

Question 10

If C(9,4) is reflected over the y-axis, then reflected over the line y=-x.

What is the final **image**, or C"?

$C''(-4,9)$

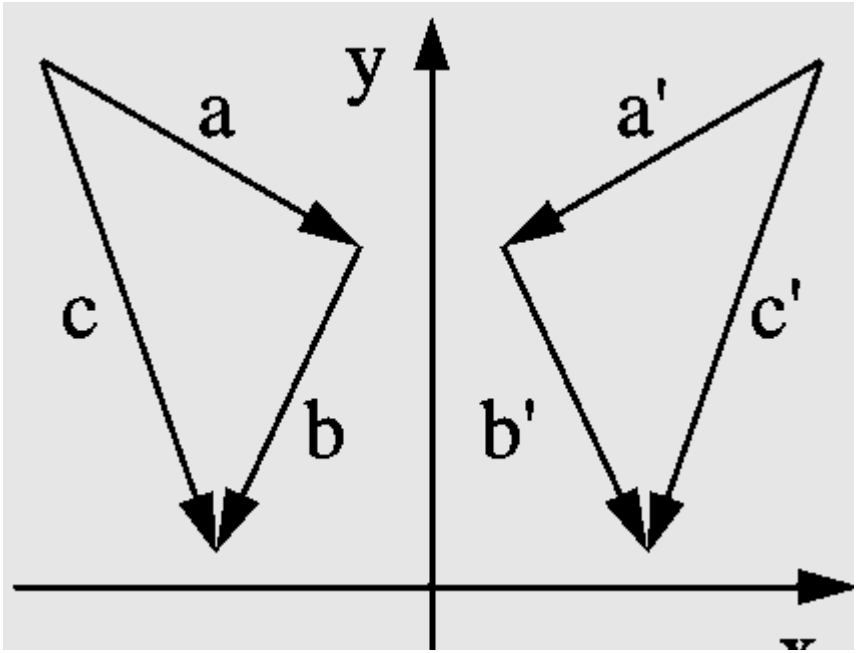
Question 11

If B(2,6) is translated using the rule $(x, y) \rightarrow (x+7, y-4)$, and then rotated 180 ° about the origin.

What is the final **image**, or B"?

$$B''(-9,-2)$$

Question 12



A reflection of triangle abc to triangle a'b'c' is shown. Which rule represents this reflection?

a) $(x, y) = (y, x)$

c) $(x, y) = (-x, y)$

b) $(x, y) = (x, -y)$

d) $(x, y) = (-x, -y)$

Question 13

Which transformation will be equivalent to rotating a figure 180 ° counterclockwise?

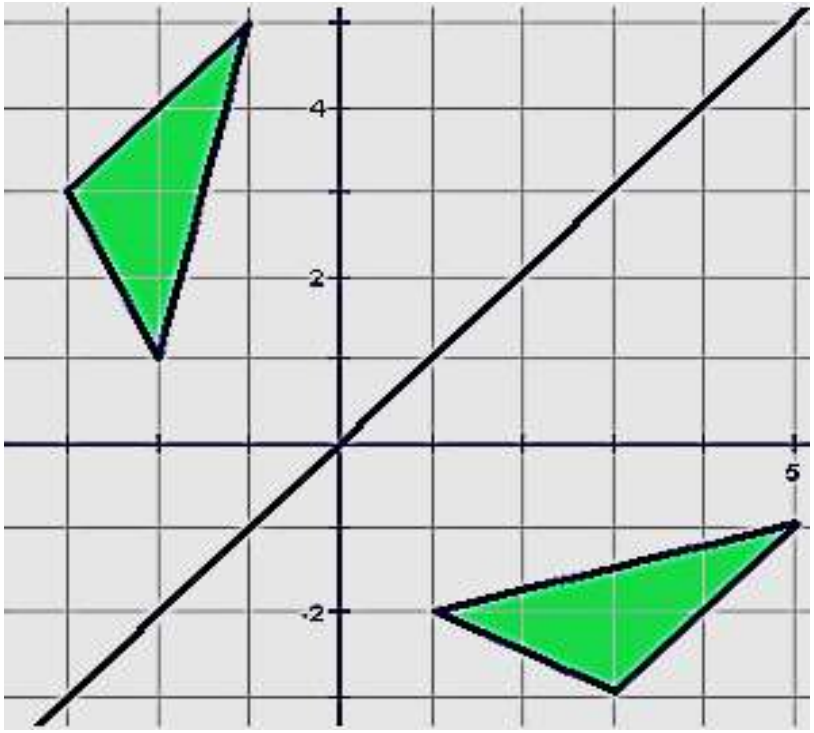
a) reflecting over y = x

c) reflecting over x – axis and the y – axis

b) reflecting over y = –x

d) translating left 3 units and down 5 units

Question 14



Describe the transformation

a) reflection across x – axis

b) reflection across y – axis

c) reflection across y = –x

d) reflection across y = x

Answers to MC Practice

Front	Back
1. B	6. A
2. C	7. D
3. D	8. B
4. C	9. B
5. C	