Math 2

- Test Friday
  - ↳ transformations
  - ↳ Angle relationships

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Vocabulary

Translation	Slide
Reflection	Flip
Rotation	Spin
Dilation	

Congruent	same size & shape
Similar	
Pre-Image	original image
Image	transformed image

Translations:

Graph the image of each figure under the given translation.

left /right
up + down

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

left 3
up 2

2. $(x,y) \rightarrow (x-1, y-1)$

left 1
down 1

The blue figure is a translation *image* of the black figure. Write a rule to describe each translation.

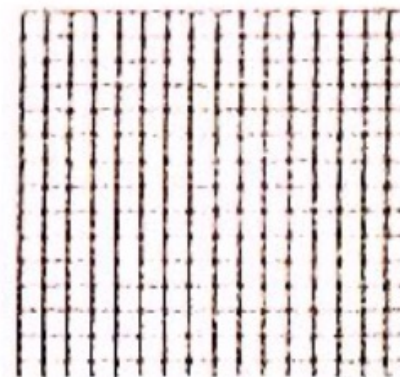3. image preimage

left 1
up 1

$(x,y) \rightarrow (x-1, y+1)$

4. image Preimage

right 4
up 3

$(x,y) \rightarrow (x+4, y+3)$

5. ABC has vertices A (-3, -4), B (-2, 1), and C (2, -3). What are the vertices of the image of ABC under the translation

$(x, y) \rightarrow (x + 3, y - 2)$ and then one unit left and two units down?

$$+3, -2 \qquad -1, -2$$

$A (-3, -4) \rightarrow (0, -6) \rightarrow (-1, -8)$

$B (-2, 1) \rightarrow (1, -1) \rightarrow (0, -3)$

$C (2, -3) \rightarrow (5, -5) \rightarrow (4, -7)$

6. DEFG has vertices D (-5, -4), E (3, 6), F (0, 4), and G (2, -2). What are the vertices of D''E''F''G'' after a translation four units left and two units down, then one unit right and four units down?
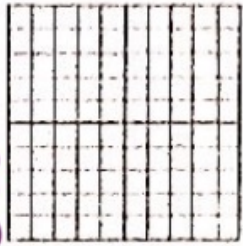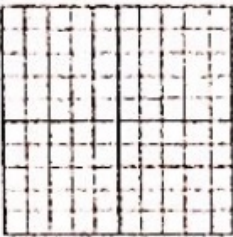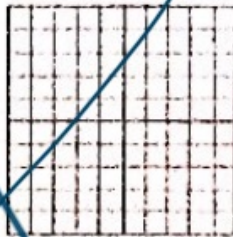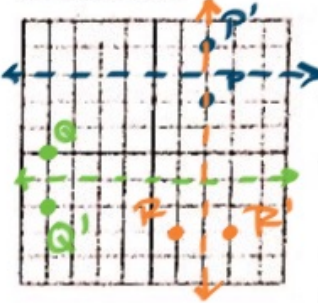
$$-4, -2 \qquad +1, -4$$

$D (-5, -4) \qquad \rightarrow (-8, -10)$

$E (3, 6) \rightarrow \qquad \rightarrow (0, 0)$

$F (0, 4) \qquad \rightarrow (-3, -2)$

$G (2, -2) \qquad (-1, -8)$

x-axis: $(x, -y)$

Pre-Image
A (1, 1)
B (3, 1)
C (2, 3)

Image
A' $(1, -1)$
B' $(3, -1)$
C' $(2, -3)$

y-axis: $(-x, y)$

Pre-Image
A (1, 1)
B (3, 1)
C (2, 3)

Image
A' $(-1, 1)$
B' $(-3, 1)$
C' $(-2, 3)$

Line y = x: (y, x)

Pre-Image
A (1, 1)
B (3, 1)
C (1, 3)

Image
A' $(1, -1)$
B' $(1, -3)$
C' $(3, -3)$

Line y = -x: $(-y, -x)$

Pre-Image
A (-1, 1)
B (3, 1)
C (3, 3)

Image
A' $(-1, 1)$
B' $(-1, 3)$
C' $(-3, 3)$

Origin:

Pre-Image
A (1, 3)
B (3, 1)
C (1, 3)

Image
A'
B'
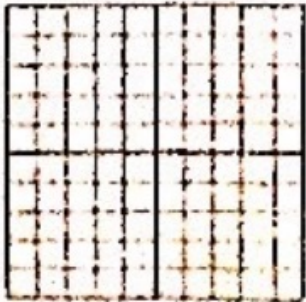C'

Other Reflections

$y = ?$ horizontal
$x = ?$ vertical

1. Reflect P (2, 2) across the line x = 1
$(2, 4)$

2. Reflect Q (-4, 0) across the line y = ?
$(-4, -2)$

3. Reflect R (1, -1) across the line x = 2
$(3, -3)$

Rotations Clockwise - __90°__ = Counter-Clockwise __270°__

90 degrees: __(-y, x)__   180 degrees: __(-x, -y)__   270 degrees: __(y, -x)__

Pre-Image
A (2, 1)
B (5, 1)
C (4, 3)

Image
A(-1 , 2)
B(-1 , 5)
C'(-3, 4)

Pre-Image
A (2, 1)
B (5, 1)
C (4, 3)

Image
A' (-2, -1)
B' (-5, -1)
C' (-4, -3)

Pre-Image
A (2, 1)
B (5, 1)
C (4, 3)

Image
A'(1 , -2)
B'(1, -5)
C' (3, -4)