# Compositions of Transformations

Name: Answer Key

Composition of Transformation: A composition is a transformation in which a second transformation is performed on the image of a first transformation.

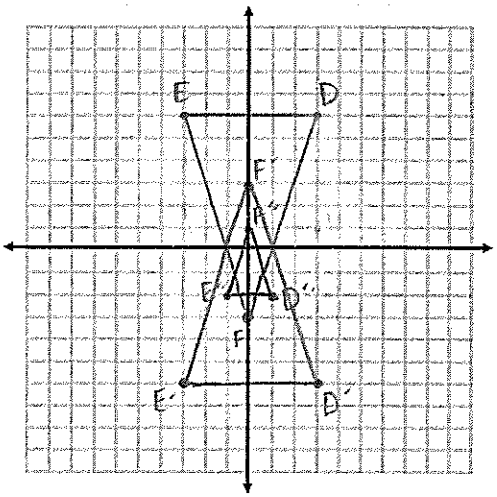
**Guided Examples:**

Given $\Delta$ DEF with D (~~3, 1~~ 3, 6), E (~~-3, 2~~ -3, 6), and F (~~-2, 2~~ 0, -3). Find the image points after:

a. A reflection over the x-axis, then a dilation of $\frac{1}{3}$

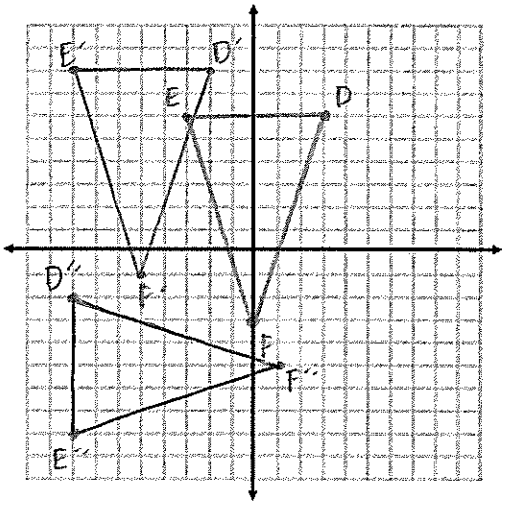
Complete one transformation at time—IN ORDER!

D'(3, -6) D''(1, -2)
E'(-3, -6) E''(-1, -2)
F'(0, 3) F''(0, 1)



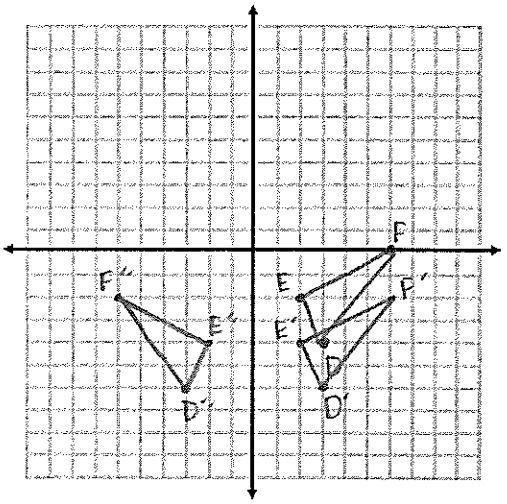

b. A translation of (x, y) → (x - 5, y + 2) then a rotation of 90° counter clockwise

D'(-2, 8) D''(-8, -2)
E'(-8, 8) E''(-8, -8)
F'(-5, -1) F''(1, -5)




c. Triangle DEF has vertices D (3, -4), E (2, -2), and F (~~0, -1~~ 6, 0). Find the coordinates after a translation of (x, y) → (x, y - 2) and a reflection over the y-axis.

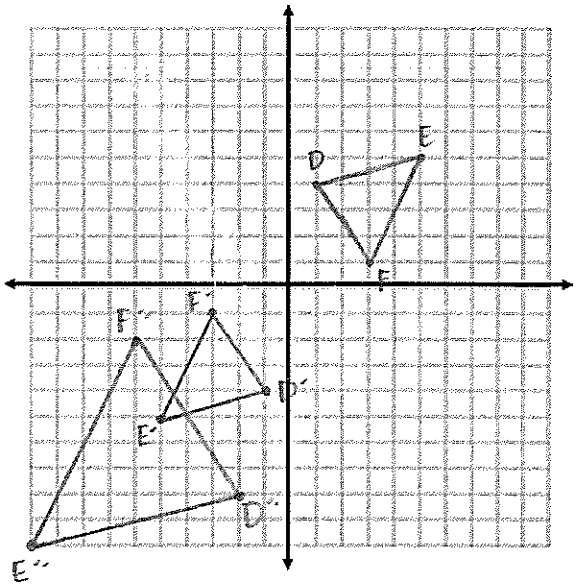
D'(3, -6) D''(-3, -6)
E'(2, -4) E''(-2, -4)
F'(6, -2) F''(-6, -2)



Given $\Delta$ DEF with D (~~-5, -7~~ 1, 4), E (~~-3, -2~~ 5, 5), and F (~~-4, -8~~ 3, 1). Find the image points after:

e. A rotation of 180° counter clockwise, then a dilation of 2.

D′ (-1, -4) D″ (-2, -8)
E′ (-5, -5) E″ (-10, -10)
F′ (-3, -1) F″ (-6, -2)




f. Triangle ABC has vertices A (3, 2), B (-1, -3), and C (~~2, -1~~ 3, -2). Find the coordinates after a translation of (x, y) → (x + 3, y) and a reflection over the y-axis.

A′ (6, 2) A″ (-6, 2)
B′ (2, -3) B″ (-2, -3)
C′ (6, -2) C″ (-6, -2)