Translation Student Sheet—Answer Key

Part I. Exploring Translations with Patty Paper

1. Move Points A, B, and C 2 units to the right.

ORIGINAL COORDINATES	NEW COORDINATES
A: (-2,3)	A^I: (0,3)
B: (-4,-1)	B^I: (-2,-1)
C: (2,-2)	C^I: (4,-2)

Observations:

[*Student answers will vary.* Sample answer: The *y*-coordinate does not change.]

2. Move Points D, E and F 3 units down.

ORIGINAL COORDINATES	NEW COORDINATES
D: (-2,2)	D^I: (-2,-1)
E: (2,1)	E^I: (2,-2)
F: (0,-2)	F^I: (0,-5)

Observations:

[*Student answers will vary.* Sample answer: The *x*-coordinate does not change.]

3.   Move Line Segment CD 3 units to the right and 2 units down.

ORIGINAL COORDINATES	NEW COORDINATES
C: (-5,1) D: (-3,-2)	C^I: (-2,-1) D^I: (0,-4)

Observations:

[*Student answers will vary.* Sample answer: You can add 3 to the *x*-coordinate and subtract 2 from the *y*-coordinate.]

4.   Move Triangle EFG 4 units to the left and one unit up.

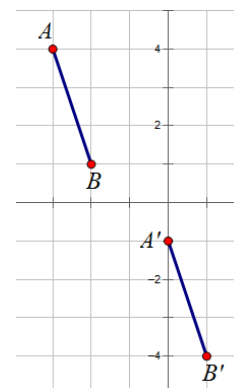| ORIGINAL COORDINATES	NEW COORDINATES
E: (-2,2) F: (1,0) G: (2,3)	E^I: (-6,3) F^I: (-3,1) G^I: (-2,4)

Observations:

[*Student answers will vary.* Sample answer: You can add 3 to the *x*-coordinate and subtract 2 from the *y*-coordinate.]

Part II. Exploring Properties of Translations

1. (x+3, y-5)

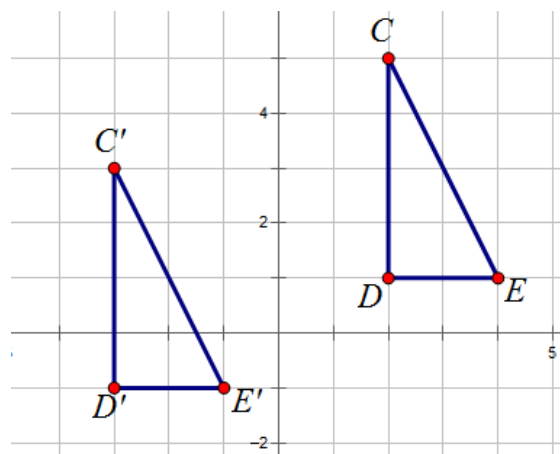| ORIGINAL COORDINATES	NEW COORDINATES
A: (-3,4) B: (-2,1)	A^I: (0,-1) B^I: (1,-4)

Observations:

[*Student answers will vary.* Sample answer: The combination of these translations moved the image diagonally.]

2. (x-5, y-2)

ORIGINAL COORDINATES	NEW COORDINATES
C: (2,5) D: (2,1) E: (4,1)	C^I: (-3,3) D^I: (-3, -1) E^I: (-1,-1)

Observations:

[*Student answers will vary.* Sample answer: You can subtract 5 to the *x*-coordinate and subtract 2 from the *y*-coordinate.]

3. Create your own translation for Quadrilateral GHIJ and write your rule in table below.

Rule: [*Student answers will vary.*]

ORIGINAL COORDINATES	NEW COORDINATES
G: (,) H: (,) I: (,) J: (,)	G^I: (,) H^I: (,) I^I: (,) J^I: (,)

Observations: [*Student answers will vary.*]

4. Translate Triangle KLM on the coordinate plane and then record the rule needed to find the new figure in the table below.

Rule: [*Student answers will vary.*]

ORIGINAL COORDINATES	NEW COORDINATES
K: (,) L: (,) M: (,)	K^1: (,) L^1: (,) M^1: (,)

Observations: [*Student answers will vary.*]

Using what you have noticed in this activity, what general statements can you provide about translations? Provide at least three statements.

[*Student answers will vary.* Sample answer: When translating images, the size of the shape stays the same.]