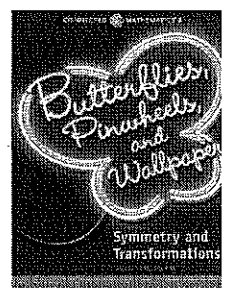
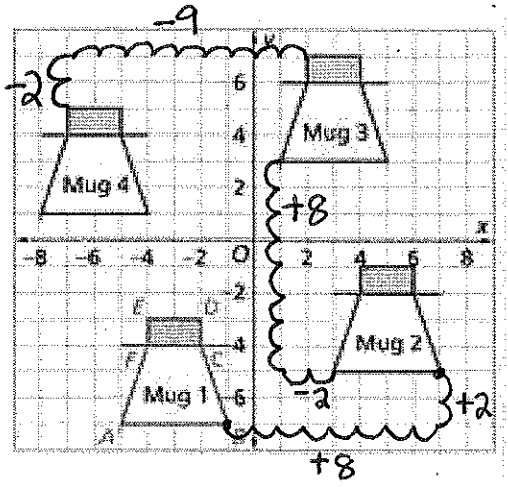


Name: Key Date: _____ Period: _____



Sliding on a Grid 3.2

The diagram below shows four figures that have been translated. You can slide Mug 1 to get the other three mugs.



- Describe the translation that moves Mug 1 to Mug 2.
Mug 1 was translated 8 units horizontally and 2 units vertically to become Mug 2.
- Fill in the table below to show the effect this translation had on the coordinates of Mug 1.

Point	A	B	C	D	E	F
Coordinates of Mug 1	(-5, -7)	(-1, -7)	(-2, -4)	(-2, -3)	(-4, -3)	(-4, -4)
Coordinates of Mug 2	(3, -5)	(7, -5)	(6, -2)	(6, -1)	(4, -1)	(4, -2)

- Write a rule showing how the coordinates of key points on Mug 1 relate to their images after a translation to Mug 2:

$$(x, y) \rightarrow (x+8, y+2)$$

- Describe the translation that moves Mug 2 to Mug 3.
Mug 2 was translated -2 units horizontally and 8 units vertically to become Mug 3.
- Fill in the table below to show the effect this translation had on the coordinates of Mug 2.

Point	A	B	C	D	E	F
Coordinates of Mug 2	(3, -5)	(7, -5)	(6, -2)	(6, -1)	(4, -1)	(4, -2)
Coordinates of Mug 3	(1, 3)	(5, 3)	(4, 6)	(4, 7)	(2, 7)	(2, 6)

- Write a rule showing how the coordinates of key points on Mug 2 relate to their images after a translation to Mug 3:

$$(x, y) \rightarrow (x-2, y+8)$$

7. Describe the translation that moves Mug 3 to Mug 4.

Mug 3 was translated -9 units horizontally and -2 units vertically to become Mug 4.

8. Fill in the table below to show the effect this translation had on the coordinates of Mug 3.

Point	A	B	C	D	E	F
Coordinates of Mug 3	(1, 3)	(5, 3)	(4, 6)	(4, 7)	(2, 7)	(2, 6)
Coordinates of Mug 4	(-8, 1)	(-4, 1)	(-5, 4)	(-5, 5)	(-7, 5)	(-7, 4)

9. Write a rule showing how the coordinates of key points on Mug 3 relate to their images after a translation to Mug 4:

$$(x, y) \rightarrow (x-9, y-2)$$

10. Using the information you collected in this investigation, what can you summarize about the effect a horizontal translation has on the coordinates?

If a horizontal translation is to the left, subtract from the x-coordinate; if it's to the right, add to the x-coordinate.

11. What can you summarize about the effect a vertical translation has on the coordinates?

If the vertical translation is down, subtract from the y-coordinate; if it's up, add to the y-coordinate.

12. A triangle has vertices at A(-4, 3), B(1, 5), C(2, -2). Using the rules you have discovered in this investigation, what would the new coordinates be if it was translated -2 units horizontally?

$$A'(-6, 3) \quad B'(-1, 5) \quad C'(0, -2)$$

subtract 2
from x

What if it was translated 4 units vertically?

$$A''(-4, 7) \quad B''(1, 9) \quad C''(2, 2)$$

→ add 4 to y