Name: KEY

**Translations Practice**

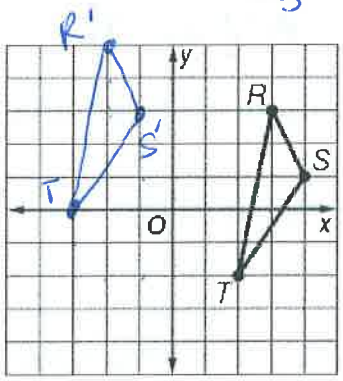
In a translate, you slide a figure from one position to another without turning it.

A translation does not change the orientation or size of the figure.

*#1*

Translate ΔRST 5 units left and 2 units up.

−5 +2



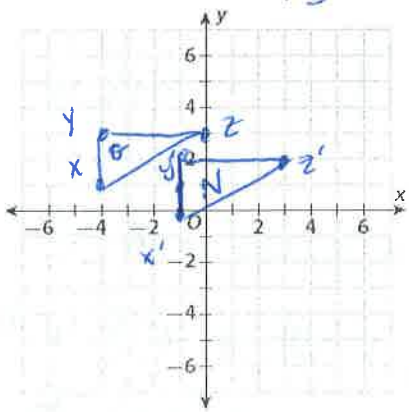

What is the algebraic representation of this translation?

| Vertices of ΔRST | Algebraic Representation (x−5, y+2) | Vertices of ΔR'S'T' |
|---|---|---|
| R(3, 3) | (3−5, 3+2) | (−2, 5) |
| S(4, 1) | (4−5, 1+2) | (−1, 3) |
| T(2, −2) | (2−5, −2+2) | (−3, 0) |

*#2:* The vertices of a figure are *X*(-4, 1), *Y*(-4, 3), *Z*(0, 3). Find the vertices of triangle X'Y'Z' after a translation of 3 units to the right and 1 unit down. Then graph the triangle and its image.

original

+3 −1




| | Vertices of ΔXYZ | Algebraic Representation (x+3, y−1) | Vertices of ΔX'Y'Z' | |
|---|---|---|---|---|
| X | (−4, 1) | (−4+3, 1−1) | (−1, 0) | X' |
| Y | (−4, 3) | (−4+3, 3−1) | (−1, 2) | Y' |
| Z | (0, 3) | (0+3, 3−1) | (3, 2) | Z' |

Name:

# Translations Practice

+8 +11

#3: Point $A(4, 5.5)$ is translated 8 units to the right and 11 units up. What is the algebraic representation of this translation? What are the coordinates of $A'$?

$(x, y) \rightarrow (x+8, y+11)$ $A'(4+8, 5.5+11) = A'(12, 16.5)$

-3 -2

#4: Point $B(-3, 4)$ is translated 3 units to the left and 2 units down. What is the algebraic representation of this translation? What are the coordinates of $B'$?

$(x, y) \rightarrow (x-3, y-2)$ $B'(-3-3, 4-2) = B'(-6, 2)$

#5: Point C(6, 4) was mapped to C'(11, 2) by a translation. What translation was used? What is the algebraic representation of this translation?

$6 \rightarrow 11$ right 5 $(+5)$
$4 \rightarrow 2$ down 2 $(-2)$

$(x, y) \rightarrow (x+5, y-2)$

#6: Figure $MNP$ has coordinates $M(-1, 1)$, $N(0, 5)$, and $P(-5, 5)$. Find the vertices of the figure after the translation (-1, 5). What is the algebraic representation of the translation?

left 1, up 5

$(x, y) \rightarrow (x-1, y+5)$

$M'(-1-1, 1+5) \rightarrow M'(-2, 6)$
$N'(0-1, 5+5) \rightarrow N'(-1, 10)$
$P'(-5-1, 5+5) \rightarrow P'(-6, 10)$

#7: A figure has vertices $A(-7, 2)$, $B(-5, 3.5)$, and $C(1, 0)$. If the figure is translated 6 units right and 2 units up, what will be the coordinates of $A'B'C'$? What is the algebraic representation of the translation?

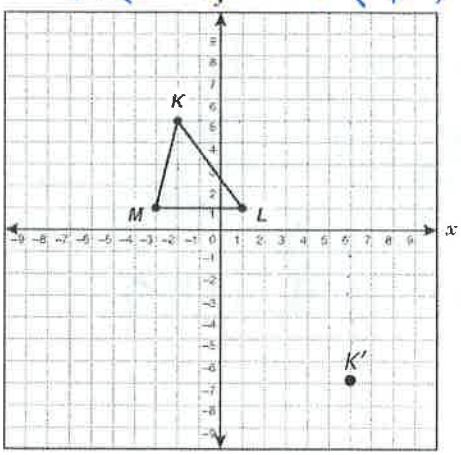
$x+6$, $y+2$

$(x, y) \rightarrow (x+6, y+2)$

$A'(-7+6, 2+2) \rightarrow A'(-1, 4)$
$B'(-5+6, 3.5+2) \rightarrow B'(1, 5.5)$
$C'(1+6, 0+2) \rightarrow C'(7, 2)$

#8: Triangle $KLM$ is translated so that $K$ is mapped to $K'$. What is the algebraic representation of this translation? Determine the coordinates of $K'L'M'$.

$K(-2, 5)$ $L(1, 1)$ $M(-3, 1)$




Right 8 $(x+8)$
Down 12 $(y-12)$

$(x, y) \rightarrow (x+8, y-12)$

$K'(-2+8, 5-12) \rightarrow K'(6, -7)$
$L'(1+8, 1-12) \rightarrow L'(9, -11)$
$M'(-3+8, 1-12) \rightarrow M'(5, -11)$