G.G.54: Translations 1: Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)

1 What is the image of the point $(-5, 2)$ under the translation $T_{3,-4}$?
1) $(-9, 5)$
2) $(-8, 6)$
3) $(-2, -2)$
4) $(-15, -8)$

2 A translation moves $P(3, 5)$ to $P'(6, 1)$. What are the coordinates of the image of point $(-3, -5)$ under the same translation?
1) $(0, -9)$
2) $(-5, -3)$
3) $(-6, -1)$
4) $(-6, -9)$

3 The image of point $(-2, 3)$ under translation T is $(3, -1)$. What is the image of point $(4, 2)$ under the same translation?
1) $(-1, 6)$
2) $(0, 7)$
3) $(5, 4)$
4) $(9, -2)$

4 The image of the origin under a certain translation is the point $(2, -6)$. The image of point $(-3, -2)$ under the same translation is the point
1) $(-6, 12)$
2) $(-5, 4)$
3) $\left(-\frac{3}{2}, \frac{1}{3}\right)$
4) $(-1, -8)$

5 Triangle ABC has vertices $A(1, 3)$, $B(0, 1)$, and $C(4, 0)$. Under a translation, A', the image point of A, is located at $(4, 4)$. Under this same translation, point C' is located at
1) $(7, 1)$
2) $(5, 3)$
3) $(3, 2)$
4) $(1, -1)$

6 The image of ΔABC under a translation is $\Delta A'B'C'$. Under this translation, $B(3, -2)$ maps onto $B'(1, -1)$. Using this translation, the coordinates of image A' are $(-2, 2)$. Determine and state the coordinates of point A.

7 A design was constructed by using two rectangles $ABDC$ and $A'B'C'D'$. Rectangle $A'B'C'D'$ is the result of a translation of rectangle $ABDC$. The table of translations is shown below. Find the coordinates of points B and D'.

Rectangle *ABDC*	Rectangle *A'B'D'C'*
A (2,4)	A' (3,1)
B	B' (-5,1)
C (2,-1)	C' (3,-4)
D (-6,-1)	D'

G.G.54: Translations 1: Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)
Answer Section

1 ANS: 3
$-5 + 3 = -2 \qquad 2 + -4 = -2$

REF: 011107ge

2 ANS: 1
$(x, y) \rightarrow (x + 3, y - 4).$

REF: 060309a

3 ANS: 4
$(x, y) \rightarrow (x + 5, y - 4).$

REF: 010614a

4 ANS: 4
$(x, y) \rightarrow (x + 2, y - 6).$

REF: 080508b

5 ANS: 1
$(x, y) \rightarrow (x + 3, y + 1)$

REF: fall0803ge

6 ANS:
$T_{-2,1}$ $A(0, 1)$

REF: 081431ge

7 ANS:
$B(-6, 4)$, $D'(-5, -4)$. $(x, y) \rightarrow (x + 1, y - 3).$

REF: spring9823a