G.CO.A.5: Translations 1a

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. When the transformation \(T_{2,-1}\) is performed on point \(A\), its image is point \(A'(-3,4)\). What are the coordinates of \(A\)?
   1) \((5,-5)\)
   2) \((-5,5)\)
   3) \((-1,3)\)
   4) \((-6,-4)\)

3. 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) \((-6,-9)\)

4. 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) \((9,-2)\)

5. 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) \((-1,-8)\)

6. 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) \((1,-1)\)

7. The image of \(\triangle ABC\) under a translation is \(\triangle A'B'C'\). 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 \(A\).

8. 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 \(D'\).

<table>
<thead>
<tr>
<th>Rectangle ABDC</th>
<th>Rectangle A'B'D'C'</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (2,4)</td>
<td>A' (3,1)</td>
</tr>
<tr>
<td>B</td>
<td>B' (-5,1)</td>
</tr>
<tr>
<td>C (2,-1)</td>
<td>C' (3,-4)</td>
</tr>
<tr>
<td>D (-6,-1)</td>
<td>D'</td>
</tr>
</tbody>
</table>
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Answer Section

1  ANS: 3
   \(-5 + 3 = -2 \quad 2 + -4 = -2\)
   REF: 011107ge

2  ANS: 2       REF: 011617ge

3  ANS: 1
   \((x,y) \rightarrow (x + 3, y - 4)\).
   REF: 060309a

4  ANS: 4
   \((x,y) \rightarrow (x + 5, y - 4)\).
   REF: 010614a

5  ANS: 4
   \((x,y) \rightarrow (x + 2, y - 6)\).
   REF: 080508b

6  ANS: 1
   \((x,y) \rightarrow (x + 3, y + 1)\)
   REF: fall0803ge

7  ANS:
   \(T_{-2,1} \ A(0,1)\)
   REF: 081431ge

8  ANS:
   \(B(-6,4), D'(-5,-4). \ (x, y) \rightarrow (x + 1, y - 3)\).
   REF: spring9823a