1) Using the coordinate plane, **plot** the following points and connect them:

- A(–4, 1) \( A' \)
- B(–1, 1) \( B' \)
- C(–1, 4) \( C' \)
- D(–4, 4) \( D' \)

b) Now **dilate** the figure by magnitude \(-2\). List the transformed coordinates in the spaces above.

c) **Plot** the points of the transformed figure on the same coordinate plane.

   We call this shape the ____________.

d) **COMPARE** the image to the pre-image (size/shape/orientation):

2) Using complete sentences, describe what will happen to a pre-image that is multiplied by a magnitude that is a **fractional number** (e.g., \(\frac{1}{3}\) or \(\frac{1}{4}\)). **BE COMPLETE.**

   ____________________________________________
   ____________________________________________
   ____________________________________________

3) After a **dilation**, (–9, –6) is the **image** of (72, 48). What are the coordinates of the image of (16, 24) after the same dilation? **SHOW WORK CLEARLY AND ORDERLY BELOW.**
4) **TRANSLATE** ∆SRT when \((x, y) \rightarrow (x + 7, y - 5)\).
   List the coordinates of the image ∆S’R’T’.

   \[ S' \qquad \]
   \[ R' \qquad \]
   \[ T' \qquad \]

   **DESCRIBE** the transformation:

   **COMPARE** the image to the pre-image
   (size/shape/orientation):

   For 5 - 7, tell what transformation has occurred from the pre-image to the image and describe it.
   BE SPECIFIC: slide ___ units left and ___ unit up OR reflection over the ___-axis OR dilation of magnitude ___.

   5) GIVEN: \((x, y) \rightarrow (x - 7, y + 6)\)

   6) GIVEN: \((x, y) \rightarrow (-x, y)\)

   7) GIVEN: \((x, y) \rightarrow (3x, 3y)\)

   Circle the correct response.

   8) Reflection images are **CONGRUENT** or **SIMILAR** to the pre-image.

   9) Translation images are **CONGRUENT** or **SIMILAR** to the pre-image.

   10) Dilation images are **CONGRUENT** or **SIMILAR** to the pre-image.

   11) The only transformation that ALWAYS changes orientation is **REFLECTION** or **DILATION**.
12) Plot $ABCD$, then reflect $ABCD$ over the $y$–axis. LIST the transformed coordinates.

<table>
<thead>
<tr>
<th>Original (x, y)</th>
<th>Transformed (x, y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(-5, 1)</td>
<td>A' (-5, -1)</td>
</tr>
<tr>
<td>B(-2, 1)</td>
<td>B' (-2, -1)</td>
</tr>
<tr>
<td>C(-1, 4)</td>
<td>C' (-1, -4)</td>
</tr>
<tr>
<td>D(-4, 4)</td>
<td>D' (-4, -4)</td>
</tr>
</tbody>
</table>

COMPARE the image to the pre-image (size/shape/orientation):

13) Plot $ABCD$, then reflect $ABCD$ over the $x$–axis. LIST the transformed coordinates.

<table>
<thead>
<tr>
<th>Original (x, y)</th>
<th>Transformed (x, y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(-5, 1)</td>
<td>A' (-5, 1)</td>
</tr>
<tr>
<td>B(-2, 1)</td>
<td>B' (-2, 1)</td>
</tr>
<tr>
<td>C(-1, 4)</td>
<td>C' (-1, 4)</td>
</tr>
<tr>
<td>D(-4, 4)</td>
<td>D' (-4, 4)</td>
</tr>
</tbody>
</table>

COMPARE the image to the pre-image (size/shape/orientation):
14) **GRAPH** the pre-image. Then **perform** the following transformations, **in the order specified**. **Label** each new image, using the appropriate symbols (shown). After each transformation: **list** the new coordinates, **compare** each image to its pre-image (size/shape/orientation), and write the rule for what happens to the coordinates. **USE COLORED PENCILS.**

a) **PRE-IMAGE**
   - A (–6, 10)
   - B (–2, 6)
   - C (–4, 2)
   - D (–8, 2)
   - E (–10, 6)

b) **DILATE** with magnitude \( \frac{1}{2} \).

c) **TRANSLATE** right 8 & up 3.

d) **REFLECT** over x-axis

<table>
<thead>
<tr>
<th>A'</th>
<th>A''</th>
<th>A'''</th>
</tr>
</thead>
<tbody>
<tr>
<td>B'</td>
<td>B''</td>
<td>B'''</td>
</tr>
<tr>
<td>C'</td>
<td>C''</td>
<td>C'''</td>
</tr>
<tr>
<td>D'</td>
<td>D''</td>
<td>D'''</td>
</tr>
<tr>
<td>E'</td>
<td>E''</td>
<td>E'''</td>
</tr>
</tbody>
</table>

c) **COMPARE**

| (x, y) | \(\rightarrow\) | (x, y) | \(\rightarrow\) | (x, y) | \(\rightarrow\) |