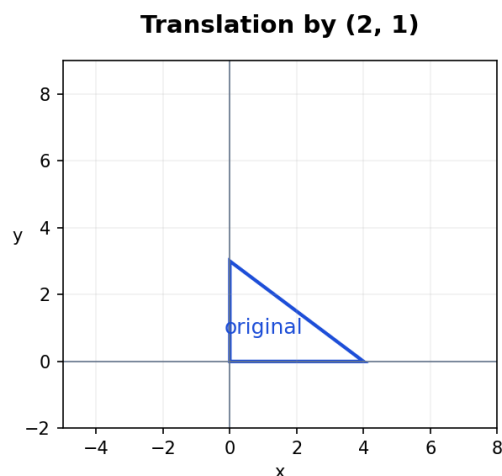


Problems | Name: \_\_\_\_\_

## 6.1 Rigid Motions

6.1.1. Translate  $A = (0, 0)$ ,  $B = (4, 0)$ ,  $C = (0, 3)$  by  $(2, 1)$ .



Add the translation vector to every vertex.

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6.1.2. Rotate  $(2, -4)$  by  $180^\circ$  about the origin.

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6.1.3. Reflect  $(4, 1)$  across  $y = x$ .

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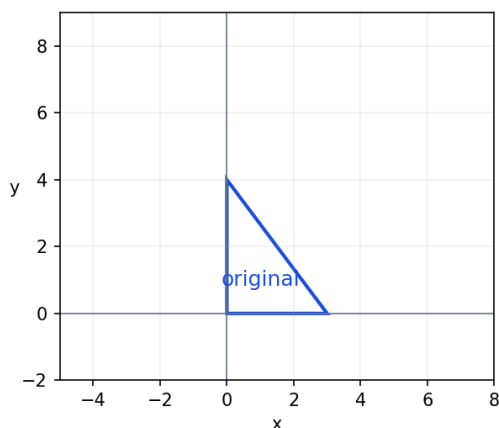
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Problems | Name: \_\_\_\_\_

## 6.2 Dilations

6.2.1. Dilate the triangle  $(0, 0)$ ,  $(3, 0)$ ,  $(0, 4)$  about the origin by factor 2. Give its image and area.

**Dilation about the origin, factor 2**



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Multiply each coordinate by 2.

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6.2.2. A dilation changes a length from 8 to 12. Find the scale factor and area factor.

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6.2.3. Can a dilation by factor 3 be a rigid motion for a nondegenerate triangle?

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Problems | Name: \_\_\_\_\_

## 6.3 Compositions

6.3.1. Apply a  $90^\circ$  counterclockwise rotation about the origin twice to  $(3, 1)$ .

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6.3.2. Reflect  $(2, 5)$  across the  $x$ -axis and then the  $y$ -axis.

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6.3.3. Translate a point by  $(4, -2)$  and then by  $(-1, 5)$ . Give the single equivalent translation.

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