1. Point $R(x, y)$ moves 7 units left and 3 units up. What is a rule that describes this translation?
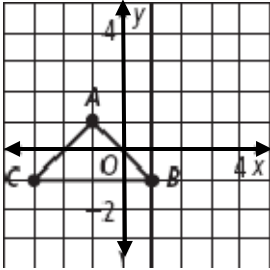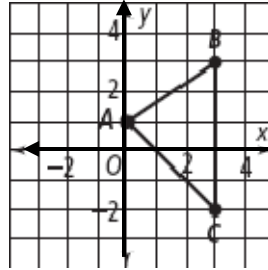
Draw the image of each figure for the given transformation.

2. $T_{<3, 2>}(\triangle ABC)$

3. $R_{y\text{-axis}}(\triangle ABC)$

4. The point (1, 1) is the image under the translation $T_{<3, -3>}$. What is the *pre-image* of this point?

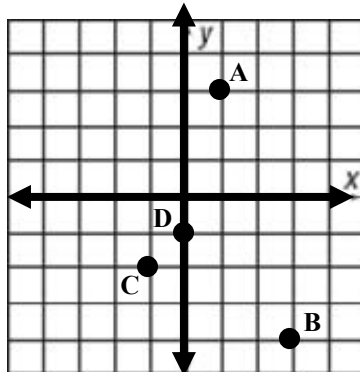**5.** Find the coordinates of each image.

a) $R_{x\text{-axis}}(C)$ C' (,   )

b) $R_{y\text{-axis}}(B)$ B' (,   )

c) $R_{y=2}(D)$ D' (,   )

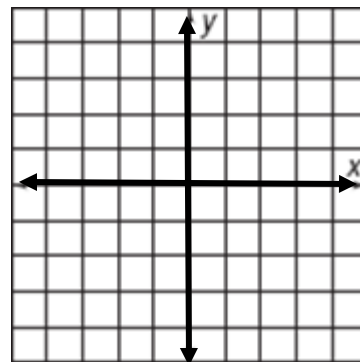d) $R_{x=3}(A)$ A' (,   )

6. $\triangle JKL$ with vertices $J(-1, -5)$, $K(-2, -3)$, and $L(4, 1)$ reflected by $R_{y\text{-axis}}$

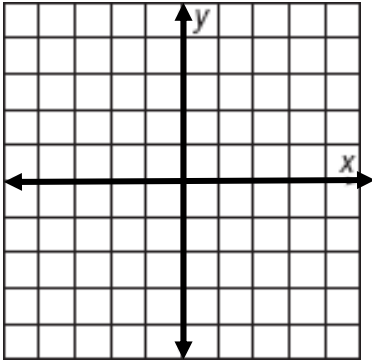What are the coordinates of the image?
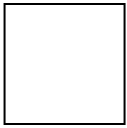
J' (,   ) K' (,   ) L' (,   )

(Use to graph #6)

7. ΔABC has vertices A(2, 1), B(2, 3), C(4, 1)
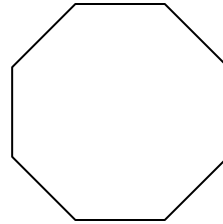
Graph $r_{(180°,\,O)}(\Delta ABC)$.

In 8-10 find the area of the regular polygons. Round your answer to the nearest **whole number or leave in radical form.**
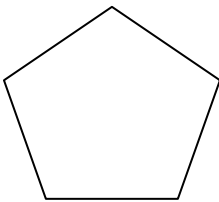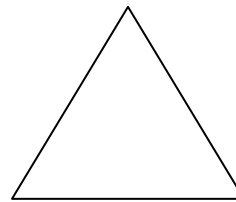
9.

8.

Radius 14 m

apothem =15 cm

10.

Perimeter=30 ft

11.

Radius 4 cm