

6-11DN-Transformations

1. A dilation with $k = 3$ centered at the origin maps $\triangle DEF$ onto $\triangle LMN$.

The following is given:

$$DE = 7.5$$

$$m\angle E = 43^\circ$$

$$m\angle F = 108^\circ$$

$$m\angle M = 5x + 8^\circ$$

Fill in the blanks:

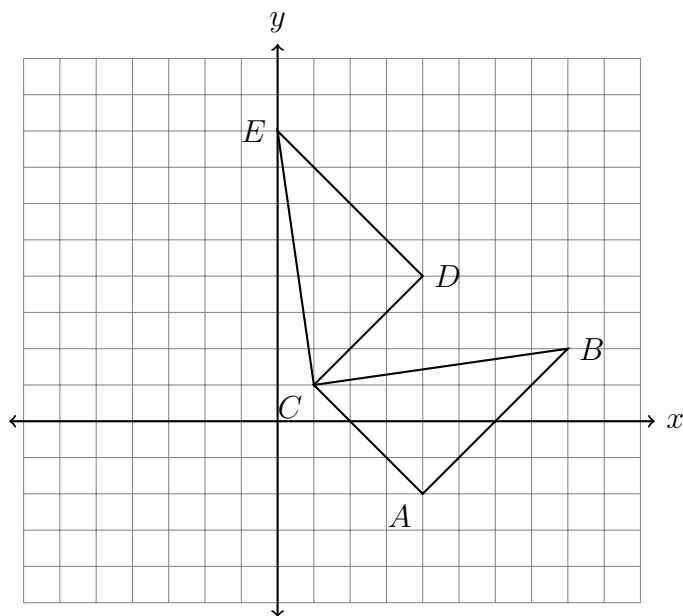
(a) $D \rightarrow$ _____

(b) $LM =$ _____

(c) $m\angle M =$ _____

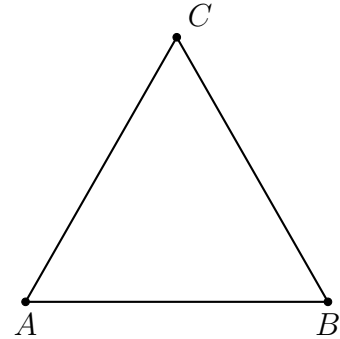
(d) Solve for x

2. What transformation maps $\triangle ABC$ onto $\triangle DEC$, shown below? Fully specify the transformation.

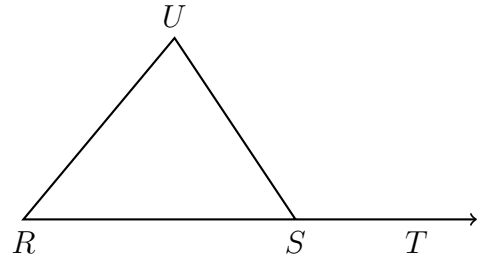


3. A translation maps $X(1, 6) \rightarrow X'(-2, 9)$. What is the image of $Y(10, -2)$ under the same translation?

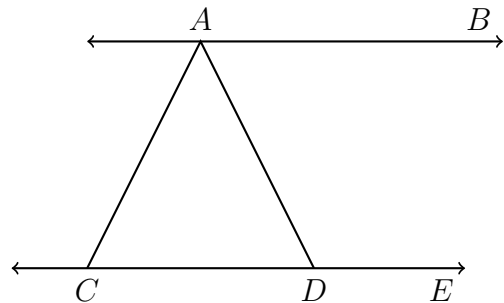
4. Given isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{AB}$, $m\angle A = x$, $m\angle B = 57$, and $m\angle C = y$. Find x and y .
(the diagram is not to scale)



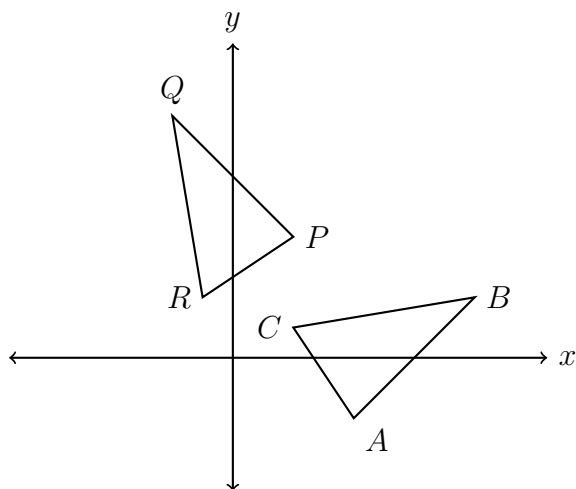
5. Given isosceles $\triangle RSU$ with $\overline{UR} \cong \overline{RS}$. If $m\angle UST = 130$ find $m\angle U$.
(the diagram is not to scale)



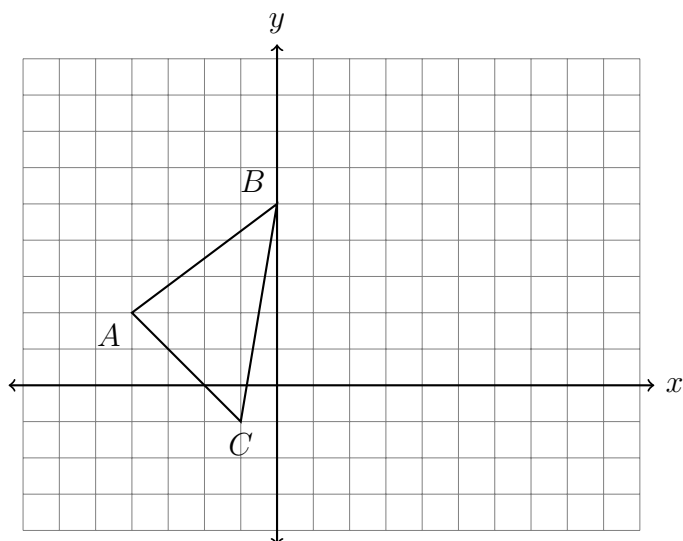
6. Given parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CDE}$ with $\overline{AC} \cong \overline{AD}$. If $m\angle BAD = 70$ find $m\angle ACD$.



7. A rotation of 90° is applied to $\triangle ABC$, mapping it onto $\triangle PQR$, as shown. Which triangle has the larger area, or are they equal? Justify your answer.

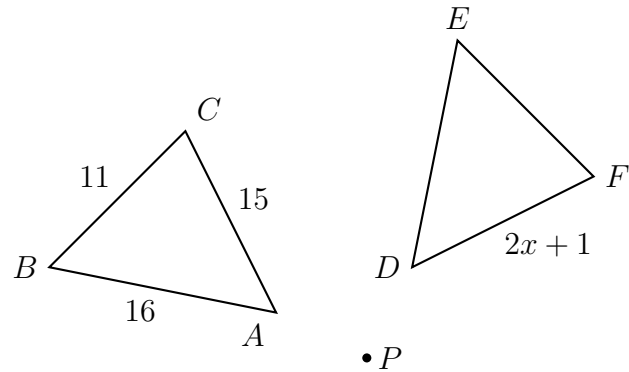


8. Find the image of $P(3, 1)$ after the translation $(x, y) \rightarrow (x - 7, y + 2)$.
9. Translate $\triangle ABC$ by $(x, y) \rightarrow (x + 5, y - 2)$. Make a table of the coordinates and plot and label the image on the axes.

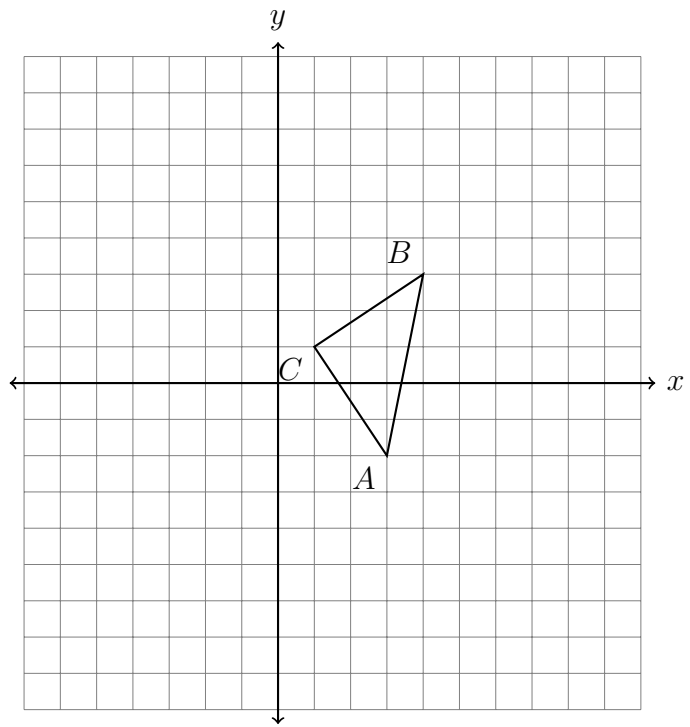


10. In the diagram below, $\triangle ABC$ with sides of 11, 15, and 16, is mapped onto $\triangle DEF$ after a clockwise rotation of 90° about point P .

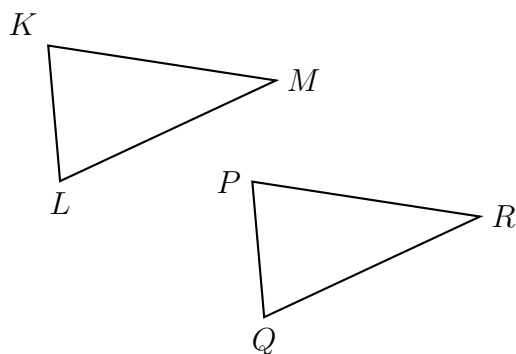
If $DF = 2x + 1$, what is the value of x ?



11. Translate $\triangle ABC$ by $(x, y) \rightarrow (x + 4, y + 2)$ then reflect it over the x -axis. Make a table of the coordinates showing $\triangle ABC \rightarrow \triangle A'B'C' \rightarrow \triangle A''B''C''$ and plot and label the image on the axes.



12. A translation maps triangle KLM onto triangle PQR .



Write each corresponding object.

- (a) $L \rightarrow$ _____
- (b) $\angle M \cong$ _____
- (c) _____ $\cong \overline{QR}$
- (d) Justify $\triangle KLM \cong \triangle PQR$. Use the words “rigid motion” and “translation”.