

11 December 2019

**6.11 Do Now: Transformations and review**

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:

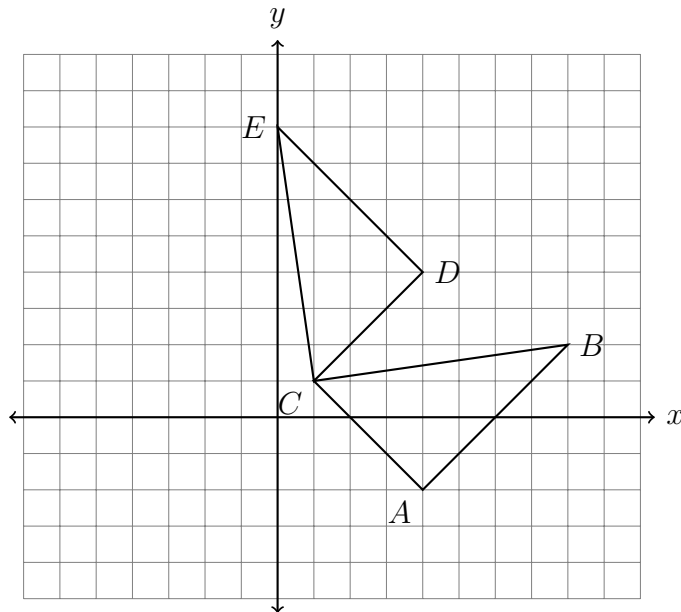
(a)  $D \rightarrow$  \_\_\_\_\_

(b)  $LM =$  \_\_\_\_\_

(c)  $m\angle M =$  \_\_\_\_\_

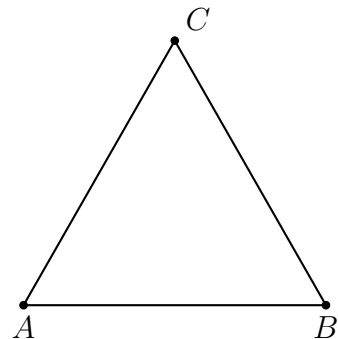
(d) Solve for  $x$

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

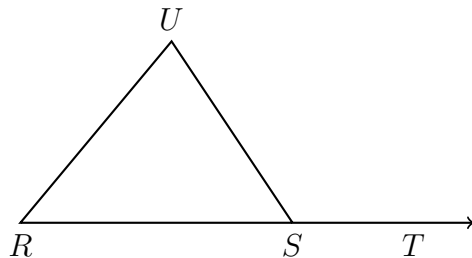


3. A translation maps  $X(1, 6) \rightarrow X'(-2, 9)$ . What is the image of  $Y(10, -2)$  under the same translation?

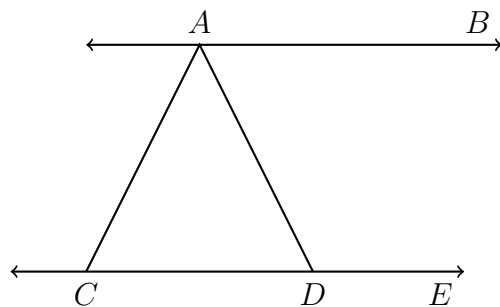
4. Given isosceles  $\triangle ABC$  with  $\overline{AC} \cong \overline{AB}$ ,  $m\angle A = x$ ,  $m\angle B = 57$ , and  $m\angle C = y$ . Find  $x$  and  $y$ .  
(the diagram is not to scale)



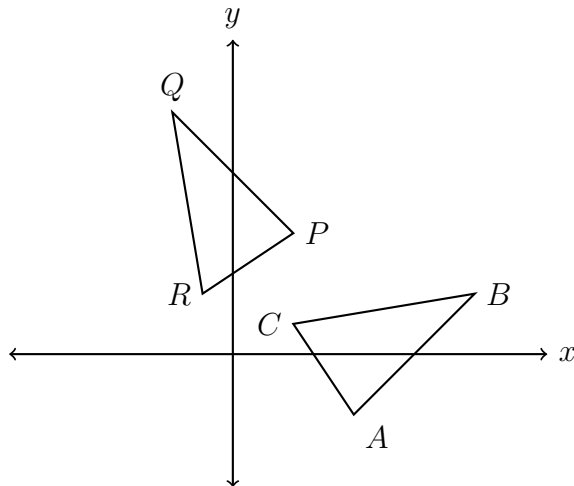
5. Given isosceles  $\triangle RSU$  with  $\overline{UR} \cong \overline{RS}$ . If  $m\angle UST = 130$  find  $m\angle U$ .  
(the diagram is not to scale)



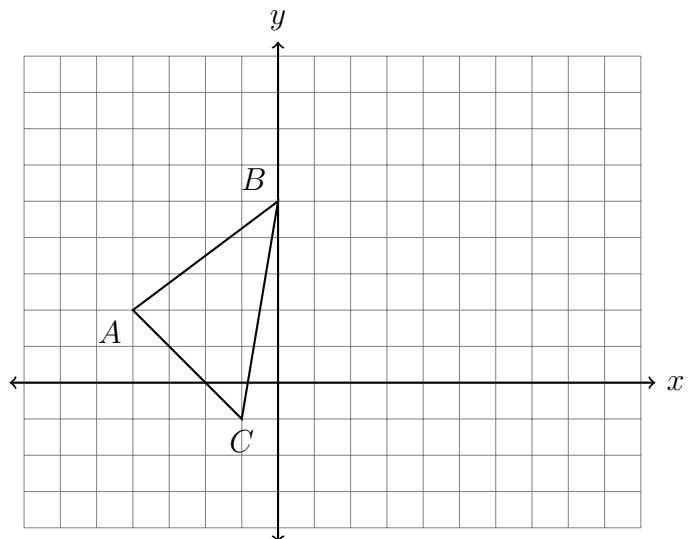
6. Given parallel lines  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CDE}$  with  $\overline{AC} \cong \overline{AD}$ . If  $m\angle BAD = 70$  find  $m\angle ACD$ .



7. A rotation of  $90^\circ$  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.

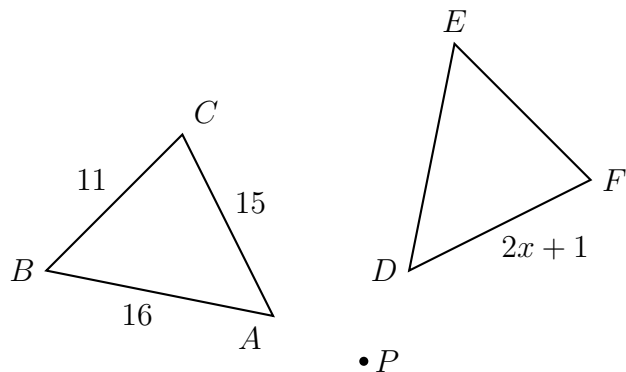


8. Find the image of  $P(3, 1)$  after the translation  $(x, y) \rightarrow (x - 7, y + 2)$ .
9. Translate  $\triangle ABC$  by  $(x, y) \rightarrow (x + 5, y - 2)$ . Make a table of the coordinates and plot and label the image on the axes.

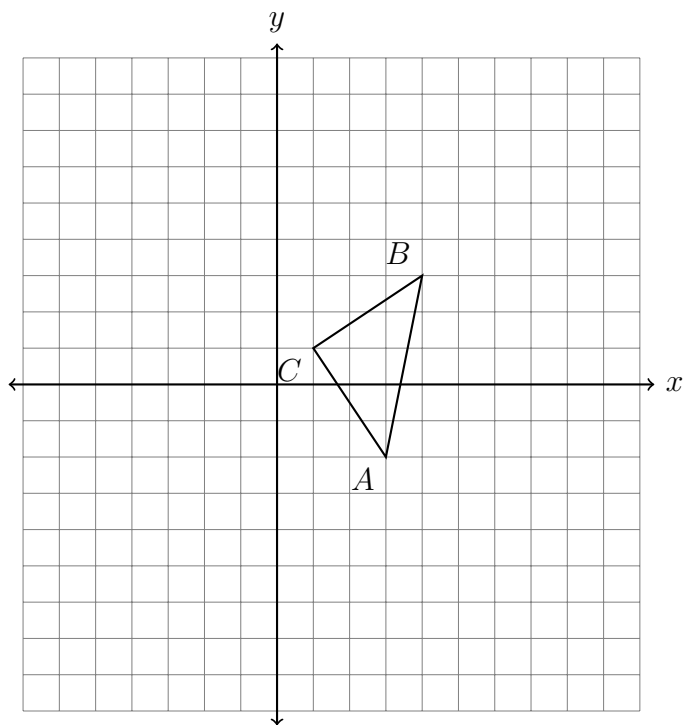


10. In the diagram below,  $\triangle ABC$  with sides of 11, 15, and 16, is mapped onto  $\triangle DEF$  after a clockwise rotation of  $90^\circ$  about point  $P$ .

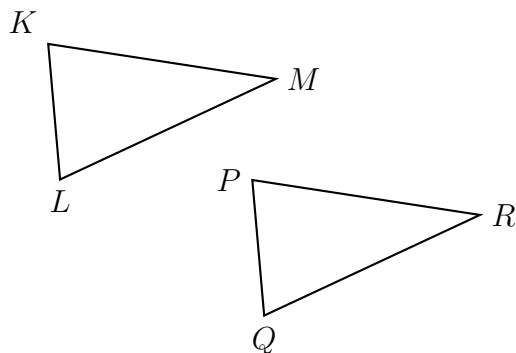
If  $DF = 2x + 1$ , what is the value of  $x$ ?



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”.