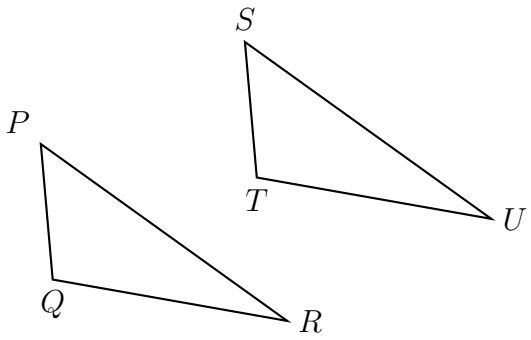
5.9b Do Now: Transformations and review

1. A translation maps triangle PQR onto triangle STU.



(a) $Q \to$ _____

(b) $\angle QRP \cong$ _____

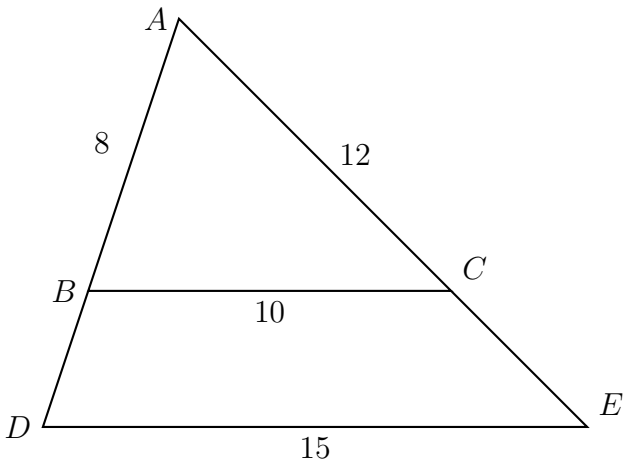
(c) _____ $\cong \overline{ST}$

(d) Justify $\triangle PQR \cong \triangle STU$. Use the words "rigid motion".

Write each corresponding object.

2. Triangle ABC is dilated with a scale factor of k centered at A, yielding $\triangle ADE$, as shown. Given $AB = 8$, $BC = 10$, $AC = 12$, and $DE = 15$.

   Find AD, CE, and k (the scale factor).



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

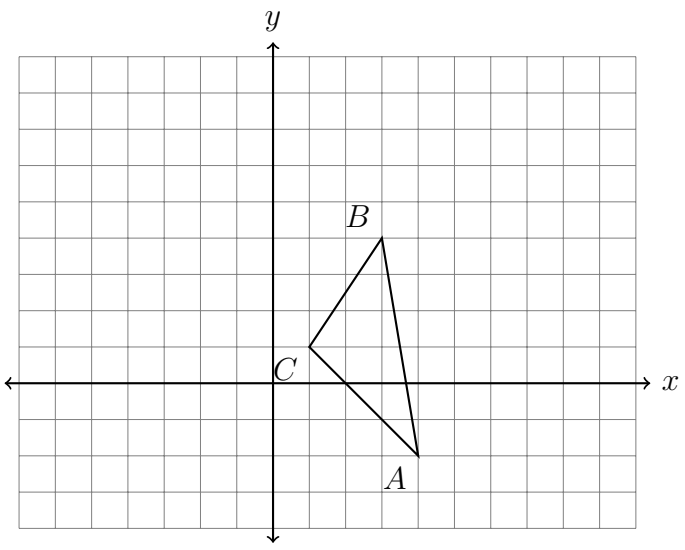
   The following is given:

   $DE = 10$
   $m\angle E = 40°$
   $m\angle F = 110°$
   $m\angle M = 2x + 10°$

   Fill in the blanks:

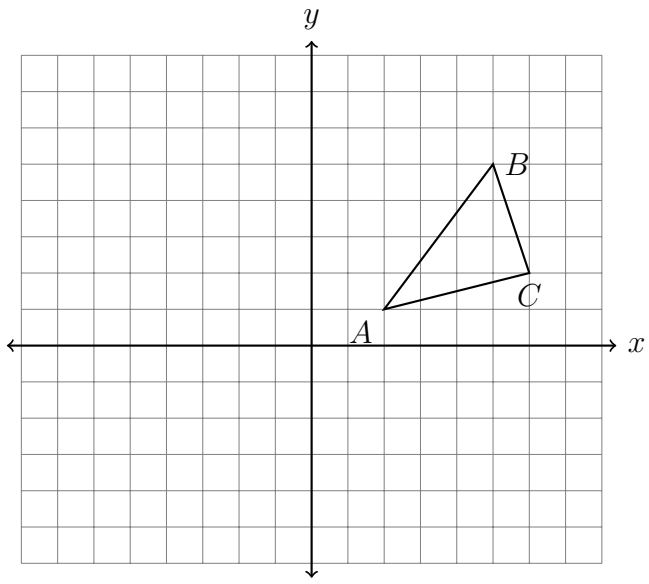
   (a) $D \rightarrow$ _____
   (b) $LM =$ _____
   (c) $m\angle M =$ _____
   (d) Solve for x

4. Translate $\triangle ABC$ by $(x, y) \rightarrow (x + 3, y + 4)$. Make a table of the coordinates and plot and label the image on the axes.

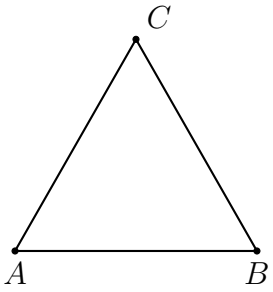


5. Given $\triangle JKL \sim \triangle MNO$. $m\angle K = 40°$ and $m\angle M = 100°$.
   Find the measure of $\angle N$.

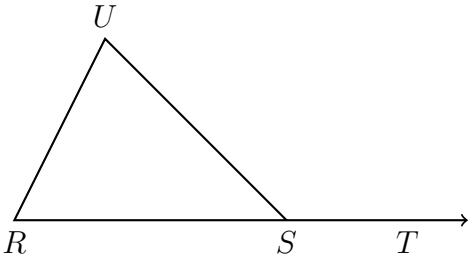
6. Apply a translation of $(x, y) \to (x - 4, y - 6)$ to $\triangle ABC$. Plot and label the image on the axes below and make a table of its coordinates.



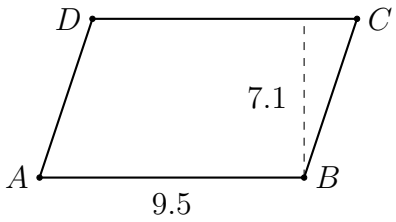
7. Given isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{AB}$, $m\angle A = x$, $m\angle B = 55$, and $m\angle C = y$. Find x and y. (*the diagram is not to scale*)



8. Given isosceles $\triangle RSU$ with $\overline{UR} \cong \overline{RS}$. If $m\angle UST = 140$ find $m\angle U$.

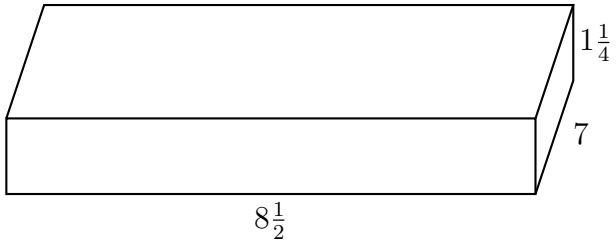


9. Find the area of the parallelogram $ABCD$ shown below, with $AB = 9.5$ and height $h = 7.1$.



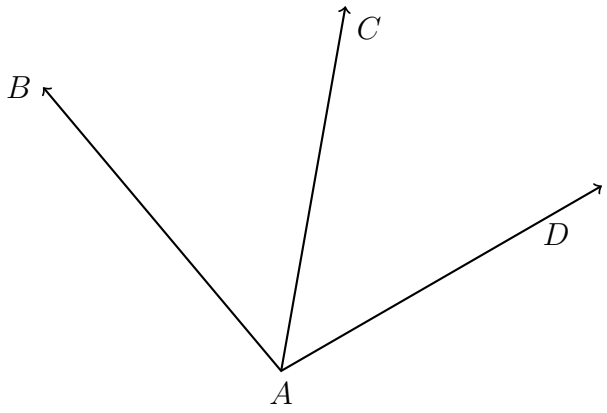
10. Find the sum of the measures of the internal angles of a hexagon. Show the formula.

11. A wooden cutting board is $8\frac{1}{2}$ inches long, 7 inches wide, and $1\frac{1}{4}$ inches thick. Find the volume of the box. Show the calculation.

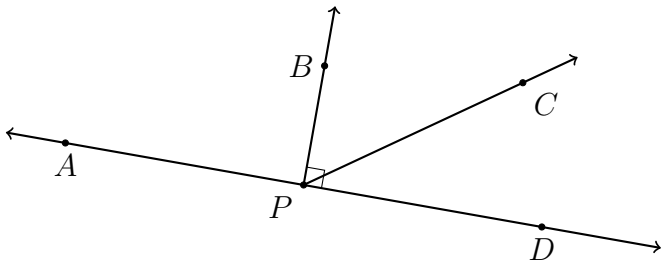


12. Of two complementary angles, the measure of $\angle A$ is two times that of $\angle B$. Find $m\angle A$.

13. An angle bisector is shown below, with $\overrightarrow{AC}$ bisecting $\angle BAD$. Given $m\angle BAC = 6x-5$ and $m\angle BAD = 9x+17$, find $m\angle BAD$. (Show check)

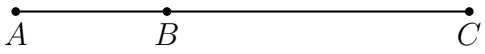


14. Angles APC and CPD form a linear pair. $m\angle APC = 10x-10$ and $m\angle CPD = 3x-5$. Find $m\angle CPD$. Check your answer for full credit.

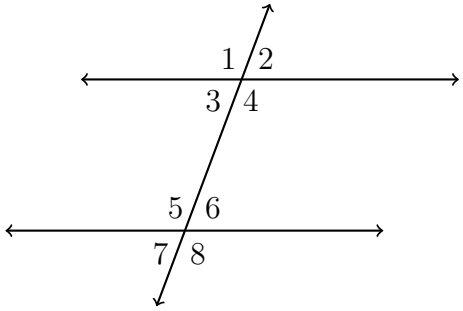


Do Not Solve!
Model the situation with an equation in terms of x.

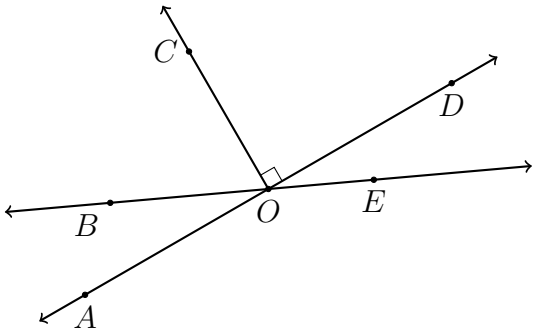
15. Given $\overline{ABC}$, with $AB = 2x - 1$, $BC = 3x + 7$, and $AC = 21$. Find x.



16. Given $m\angle 3 = x + 35$ and $m\angle 5 = 4x - 25$. Find x.



17. In the diagram below $m\angle AOB = 6x + 5$ and $m\angle COB = 8x + 15$. Find x.



18. The point K is the midpoint of $\overline{JL}$, $JK = 3x + 15$, and $JL = 9x + 9$. Find x.