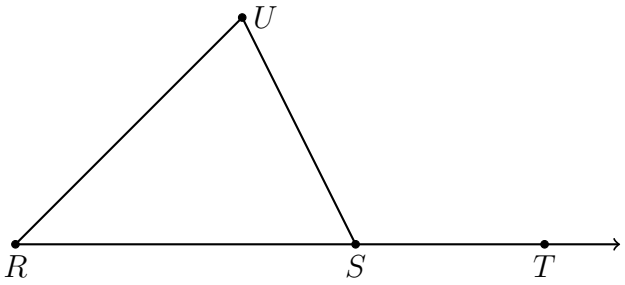
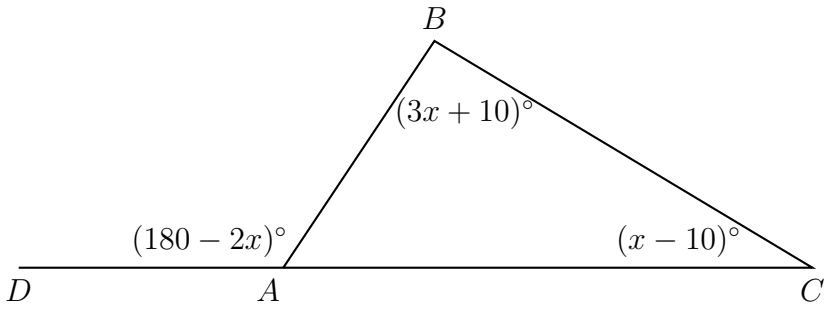
Pre Test: Due Wednesday

1. Given $m\angle R = 53°$ and $m\angle UST = 117°$. Find $m\angle U$.

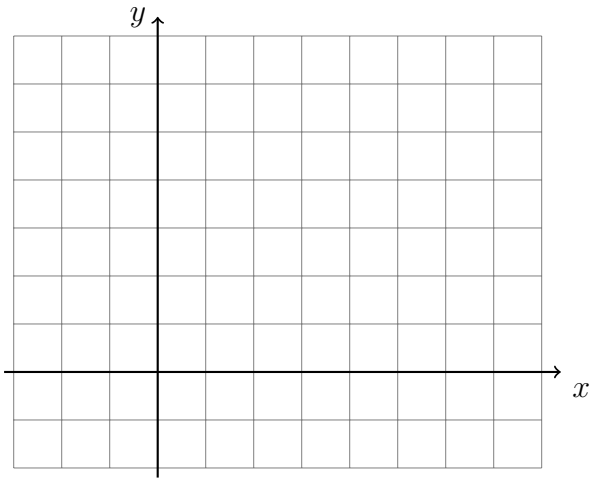


2. In $\triangle ABC$ shown below, side $\overline{AC}$ is extended to point D with $m\angle DAB = (180-2x)°$, $m\angle C = (x-10)°$, and $m\angle B = (3x+10)°$.

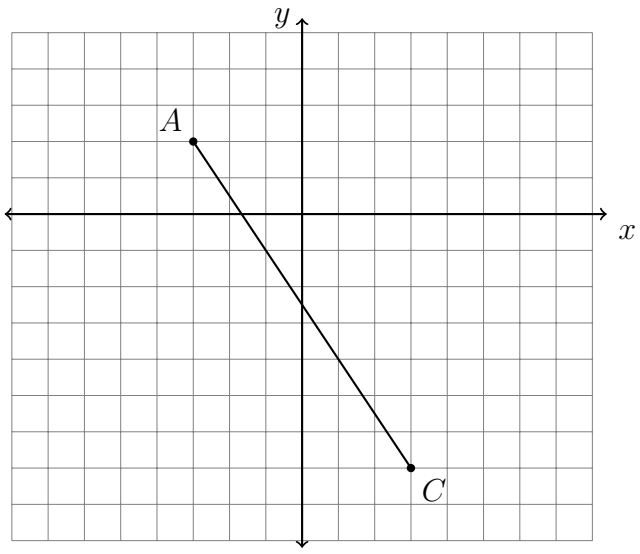


What is $m\angle BAC$?

3. On the graph below, draw $\overline{AB}$, with $A(-1, 5)$ and $B(7, 0)$, labeling the end points. Determine and state the coordinates of the midpoint M of $\overline{AB}$ and mark and label it on the graph.



4. In the diagram below, $\overleftrightarrow{AC}$ has endpoints with coordinates $A(-3, 2)$ and $C(3, -7)$.



If B is a point on and $AB{:}BC = 1{:}2$, what are the coordinates of B?

5. Express the result to the nearest thousandth.

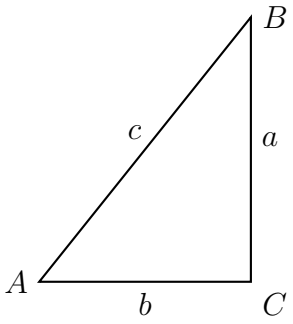
   (a) $\cos 60° =$

   (b) $\tan 45° =$

   (c) $\sin 48° =$

   (d) $\cos 15° =$

6. $\triangle ABC$ is shown with $m\angle C = 90°$. The lengths of the triangle's sides are a, b, and c.



   Express each trigonometric ratio as a fraction of two variables.

   (a) $\sin A =$

   (b) $\cos A =$

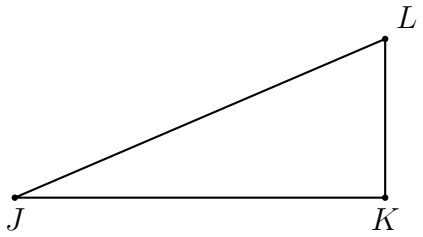
   (c) $\tan A =$

   (d) $\sin B =$

   (e) $\cos B =$

   (f) $\tan B =$

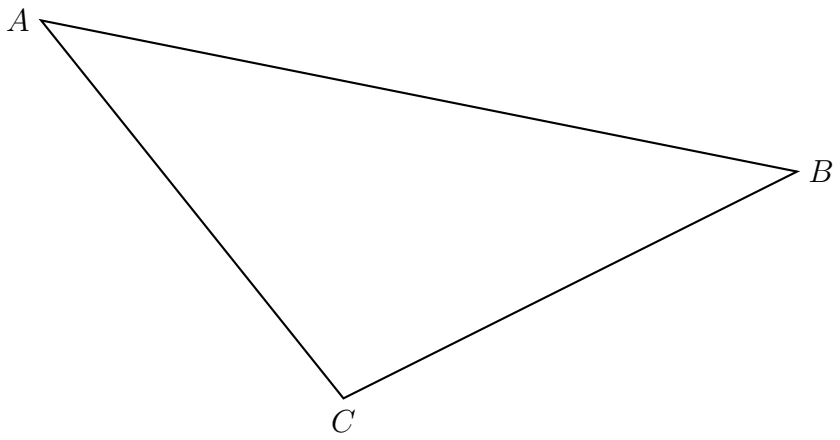
7. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 11$, $m\angle J = 29°$.



   (a) Find the length JK

   (b) Find the length KL

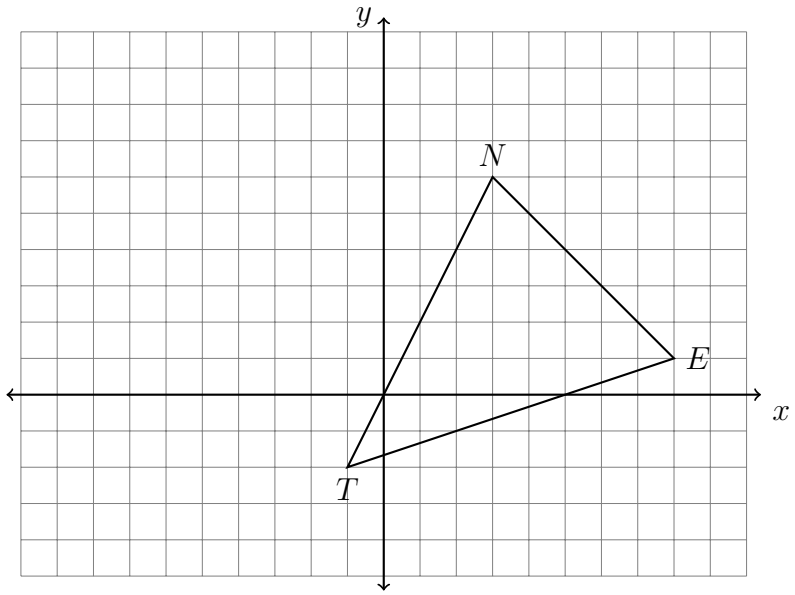
8. Using a compass and straightedge, construct the median to side $\overline{AC}$ in $\triangle ABC$ below. (Leave all construction marks.)



9. With a compass and straightedge, construct a regular hexagon inscribed in a circle. (Leave all construction marks.)

10. Given $P(3, 4)$ and $Q(11, -2)$, find the length of $\overline{PQ}$.

11. Triangle $\triangle DAN$ is graphed on the set of axes below. The vertices of $\triangle DAN$ have the coordinates $T(-1, -2)$, $E(8, 1)$, and $N(3, 6)$.



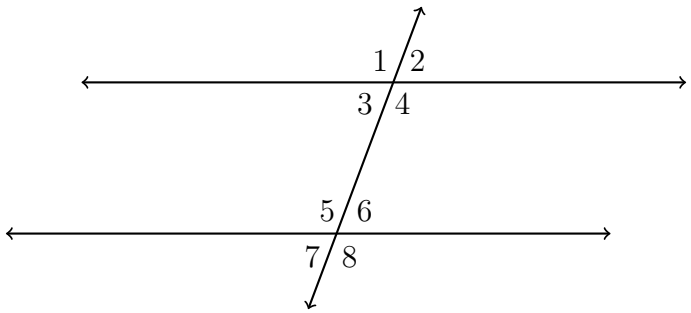
(a) Draw an altitude through point N perpendicular to $\overline{TE}$.

(b) What is the length of the altitude drawn through N?

(c) What is the length of the base, TE?

(d) Find the area of $\triangle DAN$.

12. Given two parallel lines and a transversal, as shown. Apply the theorem, "If a transversal intersects two parallel lines, then corresponding angles are congruent."



(a) State the angle corresponding with $\angle 2$.

(b) Given $m\angle 4 = 115°$ and $m\angle 6 = 5x°$. Find x.

(c) Given $m\angle 7 = 65°$. Find $m\angle 2$.

(d) In a proof, what reason would justify $\angle 4 \cong \angle 5$? _____

13. The image of triangle ABC after a translation is $\triangle A'B'C'$. Is the area of the triangle greater, smaller, or the same after the translation? Justify your answer.