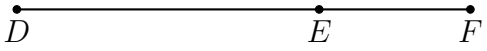
BECA/Huson/Geometry: Construction
19 November 2024

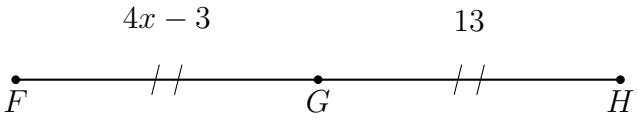
First and last name:
Section:

3.7 Trimester Final Exam

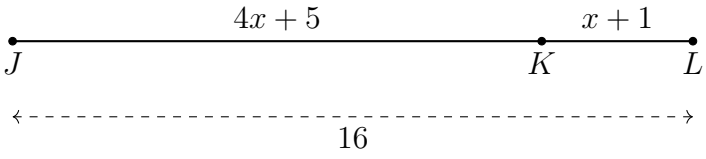
1. Given $\overline{DEF}$, $DE = 3\frac{1}{3}$, and $EF = 1$. Find DF.



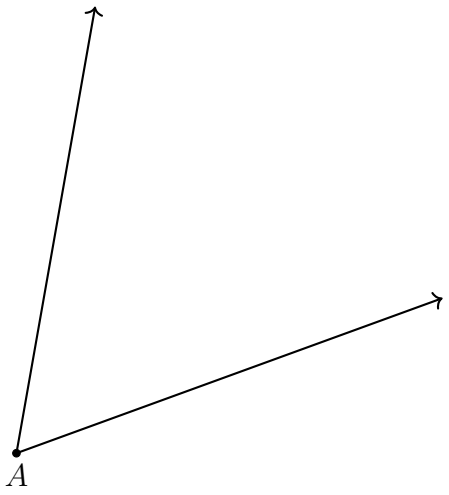
2. Point G bisects $\overline{FH}$, with $FG = 4x - 3$, $GH = 13$. Find x.



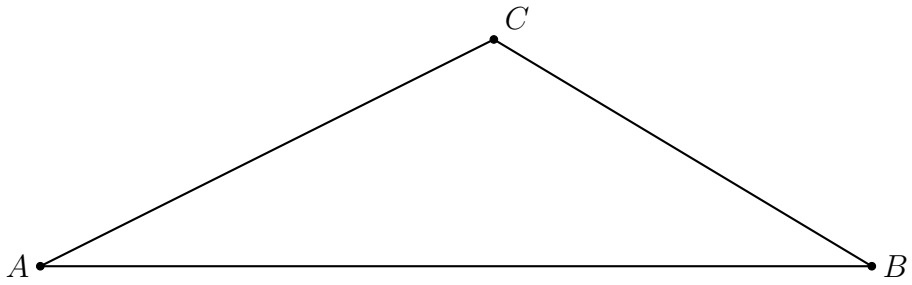
3. The diagram shows $\overline{JKL}$ with $JK = 4x + 5$, $KL = x + 1$, $JL = 16$. Find x.



4. Bisect the given angle.

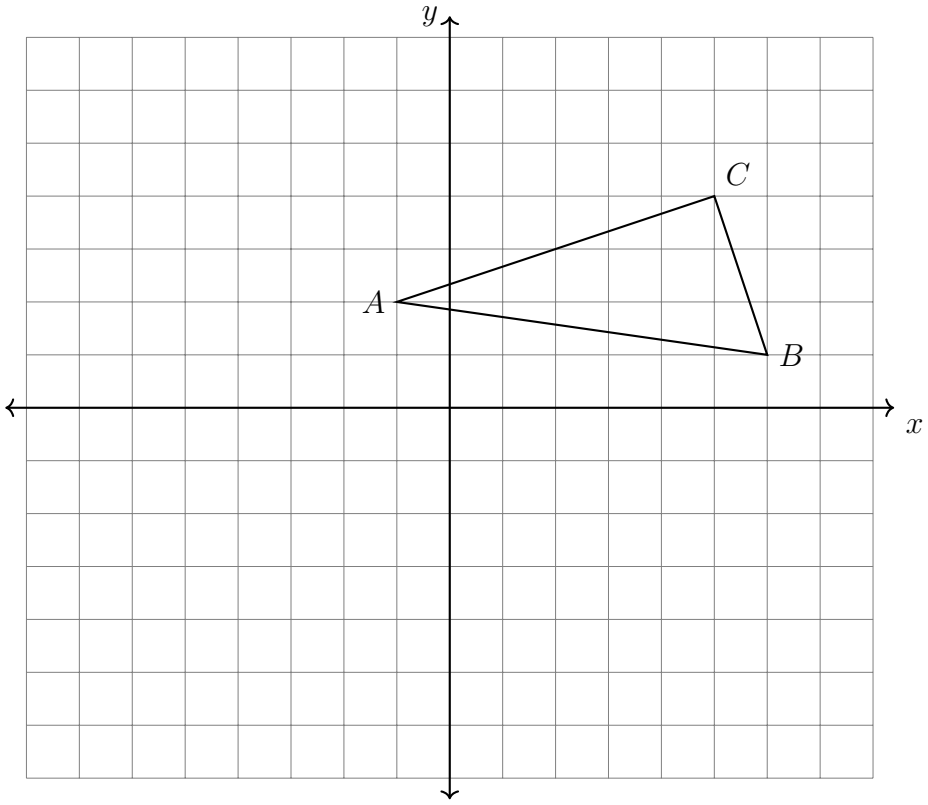


5. Construct a perpendicular to $\overline{AB}$ though C.

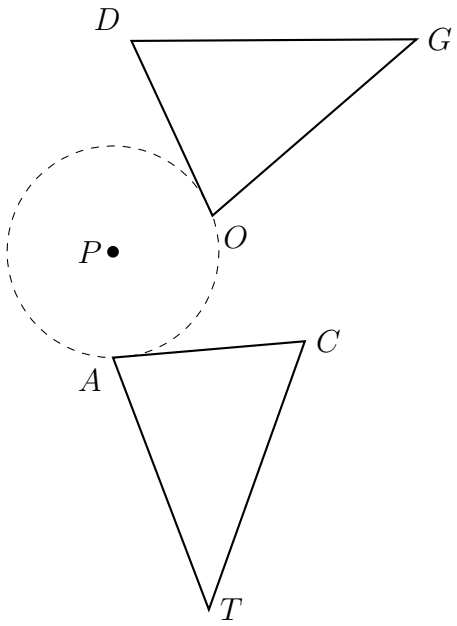


BECA/Huson/Geometry: Construction First and last name:
19 November 2024 Section:

6. $\triangle ABC$ is shown with vertices $A(-1, 2)$, $B(6, 1)$, and $C(5, 4)$. Reflect the triangle across the x-axis. Label the image $\triangle A'B'C'$ on the graph.



7. A 110° counterclockwise rotation centered at P maps triangle CAT onto triangle DOG. Write the letter or letters for each corresponding object.



(a) $T \rightarrow$

(b) $A \rightarrow$

(c) $\overline{AC} \rightarrow$

8. A translation is applied to $\triangle ABC$ moving it down 2 and to the right 5.

   (a) Write as coordinate pairs the vertices of the image, $\triangle A'B'C'$

   $A(3, 4) \rightarrow$

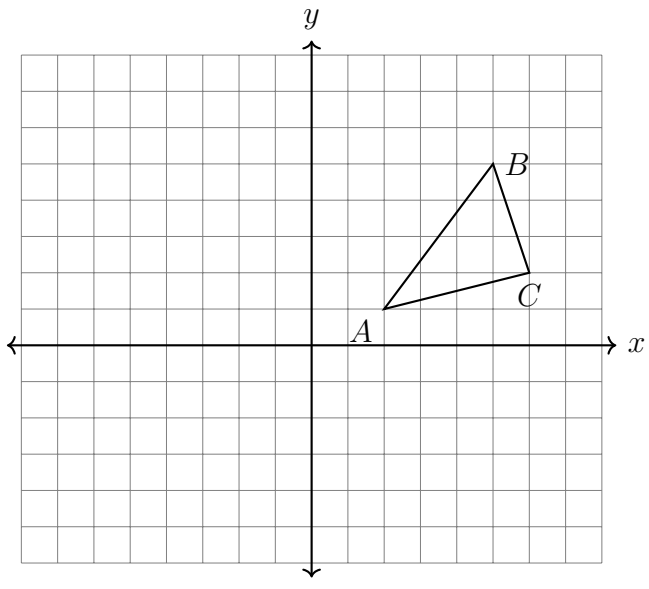
   $B(-2, -3) \rightarrow$

   $C(0, -1) \rightarrow$

   (b) Which triangle is larger, or are they the same size? Justify your answer.

9. A translation maps $D(2, 4) \rightarrow D'(-3, 4)$. What is the image of $E(5, -5)$ under the same translation?

10. Apply a counterclockwise rotation of 90° centered at the origin to $\triangle ABC$. Plot and label the image on the axes below.



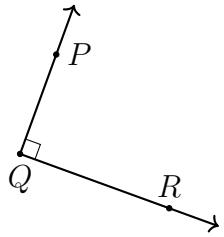
BECA/Huson/Geometry: Construction First and last name:
19 November 2024 Section:

11. Which of the following are true with respect to the angle, m$\angle PQR$?

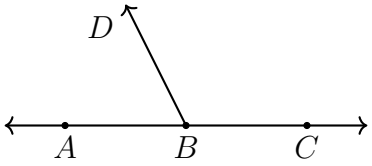
(a) True False It is an acute angle

(b) True False It's measure is 90°

(c) True False $\overrightarrow{QP} \perp \overrightarrow{QR}$



12. What is sum of the degree measures of this linear pair, $\angle ABD$ and $\angle CBD$?

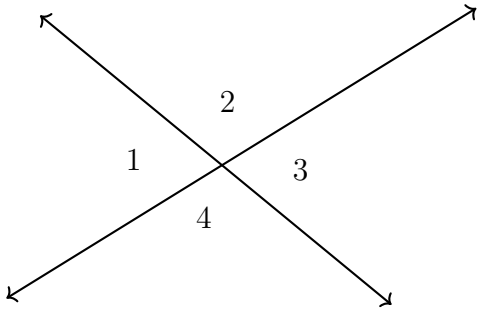


13. As shown below, two lines intersect making four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$.

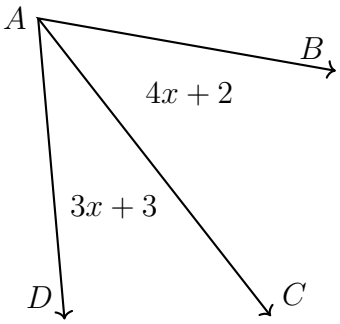
(a) Name a pair of vertical angles.

(b) Given m$\angle 3 = 80°$, write down m$\angle 1$.

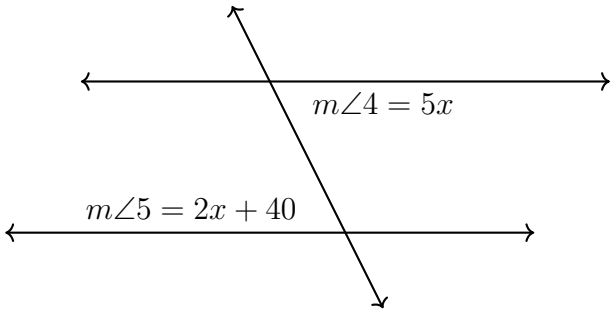
(c) Find m$\angle 4$.



14. Given m$\angle BAC = 4x + 2$ and m$\angle CAD = 3x + 3$, m$\angle BAD = 75°$. Find m$\angle BAC$.



15. Given two parallel lines and a transversal, with alternate interior angles $m\angle 4 = 5x$ and $m\angle 5 = 2x + 40$. Write an equation, then solve for x.

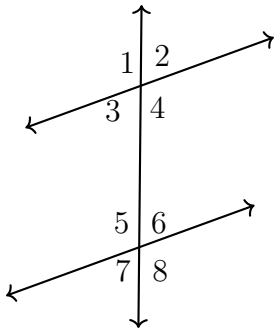


16. Given two parallel lines and a transversal, as shown, with $\text{m}\angle 8 = 123°$.

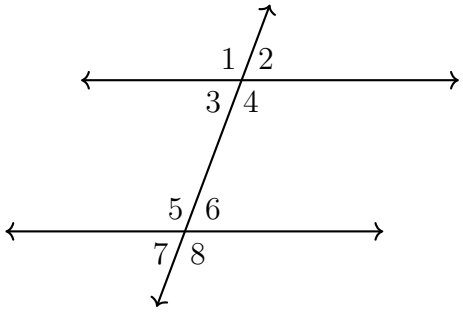
    (a) What angle is corresponding to $\angle 8$?

    (b) What angle is alternate exterior to $\angle 8$?

    (c) Find $\text{m}\angle 2$

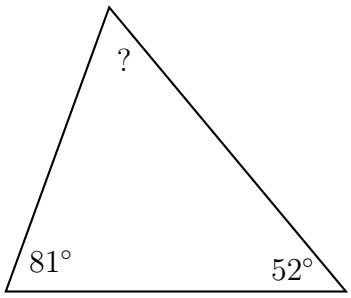


17. Given two parallel lines and a transversal, with $\text{m}\angle 1 = 3x - 10$ and $\text{m}\angle 8 = 2x + 32$. Write an equation, then solve for x.

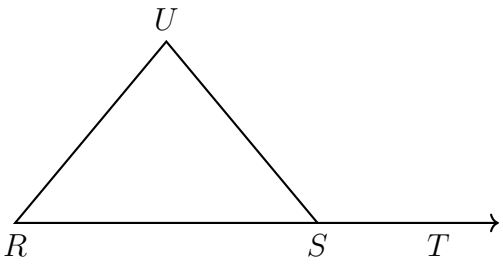


BECA/Huson/Geometry: Construction First and last name:
19 November 2024 Section:

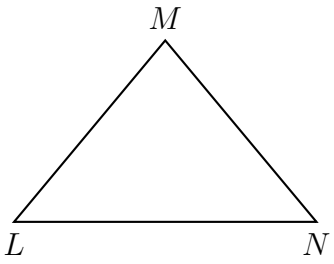
18. A triangle has two angles measuring $81°$ and $52°$. Find the measure of the third angle.



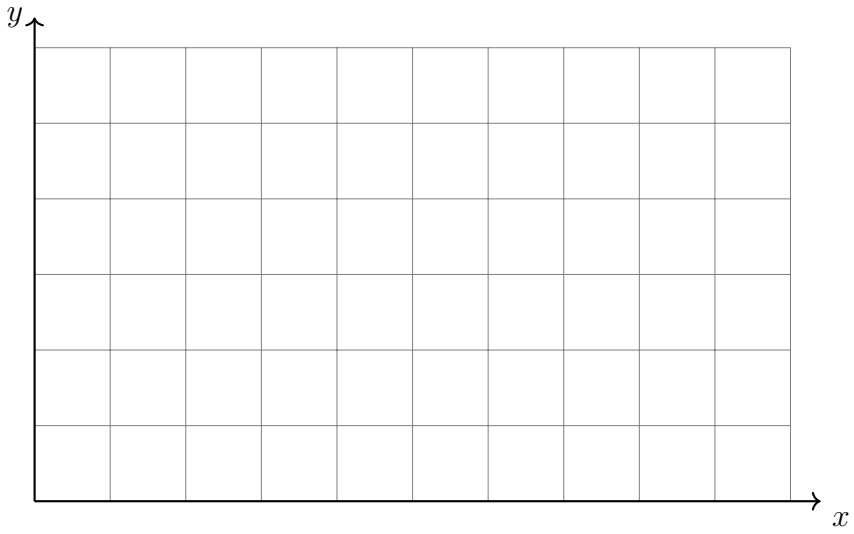
19. Given $\triangle RSU$. If $m\angle UST = x$ and $m\angle R = x - 80$, and $m\angle U = x - 50$. Find x.



20. Given isosceles $\triangle LMN$ with $\overline{LM} \cong \overline{NM}$. If $m\angle L = 2x + 20$ and $m\angle N = 3x + 5$, find $m\angle M$.



21. (a) Graph and label $\triangle ABC$ with $A(0,0)$, $B(3,2)$, and $C(3,0)$.



(b) Dilate or stretch the triangle by a factor of $k = 3$ centered at the origin.
$\triangle ABC \rightarrow \triangle A'B'C'$

(c) Find each ratio or fraction.

$\frac{A'C'}{AC} =$ $\frac{B'C'}{BC} =$ $\frac{A'B'}{AB} =$

22. Triangle ABC is dilated with a scale factor of $k = \frac{5}{3}$ centered at A, yielding $\triangle ADE$, as shown. Given $AB = 9$, $BC = 12$, and $AC = 15$.

Find AD, AE, and DE.