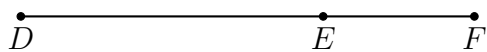
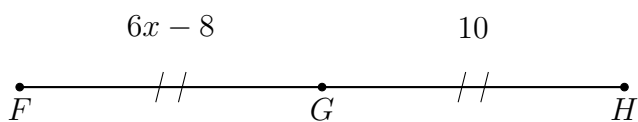


#### 4.13 PreTest: Cumulative review

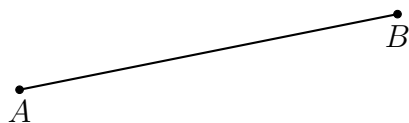
1. Given  $\overline{DEF}$ ,  $DE = 17\frac{1}{4}$ , and  $EF = 6$ . Find  $DF$ .



2. Point  $G$  bisects  $\overline{FH}$ , with  $FG = 6x - 8$ ,  $GH = 10$ . Find  $x$ .

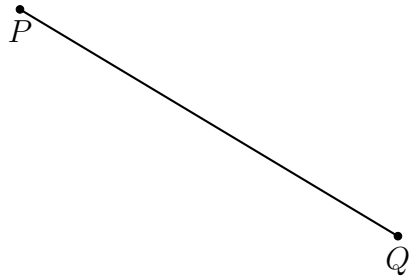


3. Construct an equilateral triangle with one side  $\overline{AB}$ .

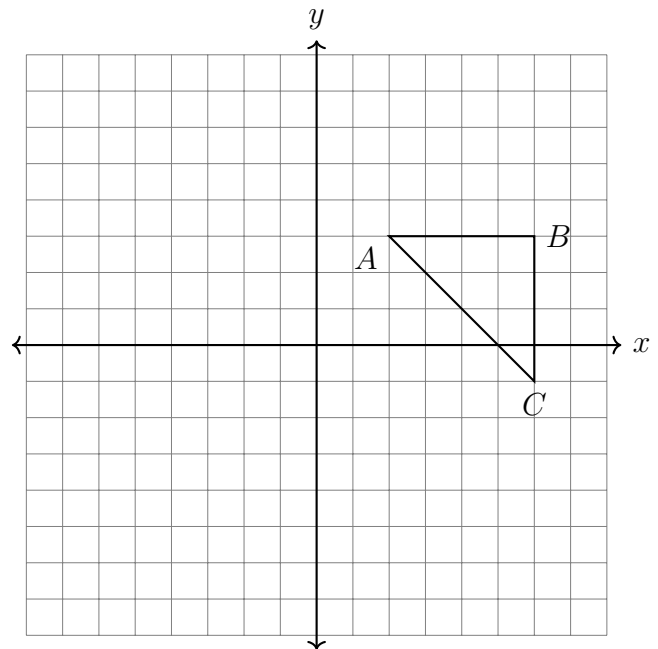


2

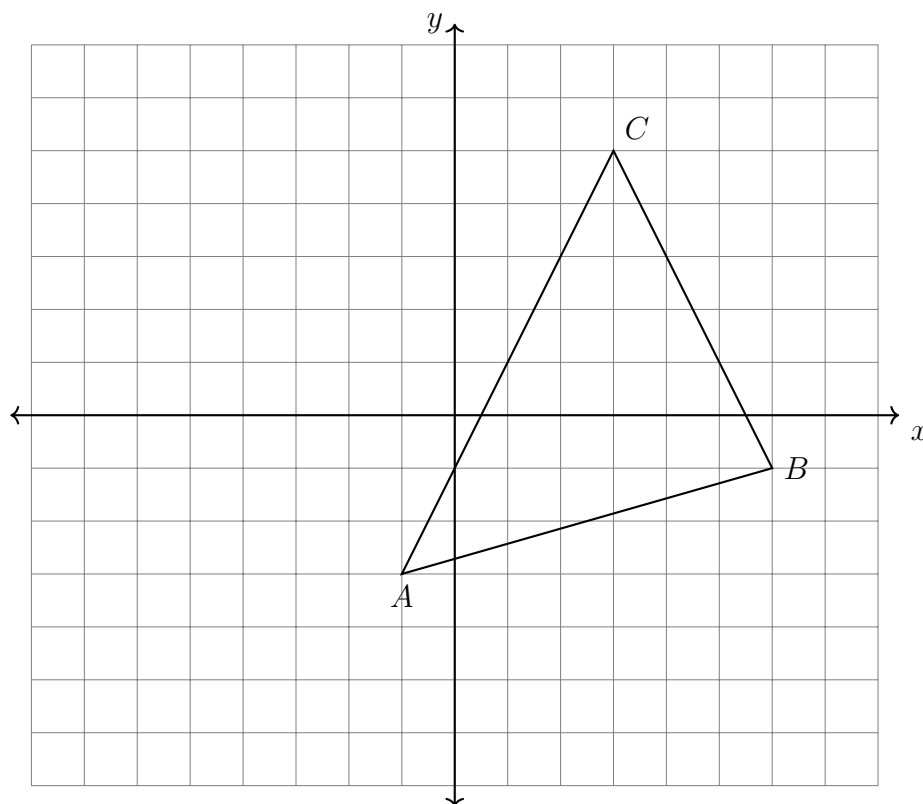
4. Construct a perpendicular bisector of  $\overline{PQ}$ .



5. Apply a clockwise rotation of  $90^\circ$  centered at the origin to  $\triangle ABC$ . Plot and label the image on the axes below.



6. Reflect  $\triangle ABC$  across the  $y$ -axis. Label the image  $\triangle A'B'C'$  on the graph.



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

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

$$A(3, 1) \rightarrow$$

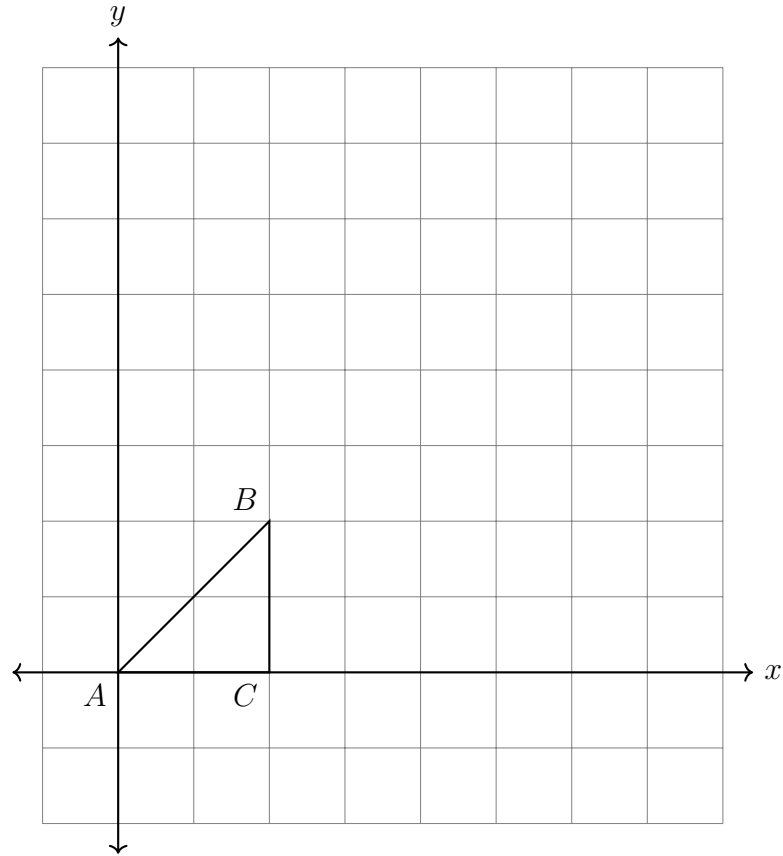
$$B(-1, -3) \rightarrow$$

$$C(-2, 7) \rightarrow$$

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

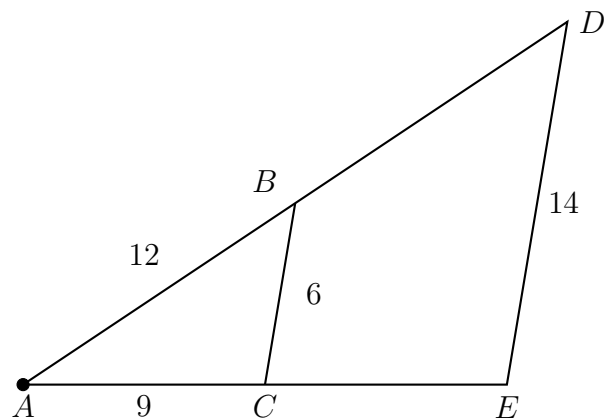
8. A translation maps  $D(-2, 3) \rightarrow D'(5, 1)$ . What is the image of  $E(-1, 2)$  under the same translation?

9. Dilate  $\triangle ABC \rightarrow \triangle A'B'C'$  by a factor of  $k = 2.5$  centered at the origin,  $(x, y) \rightarrow (2.5x, 2.5y)$ . Plot and label the image on the axes.



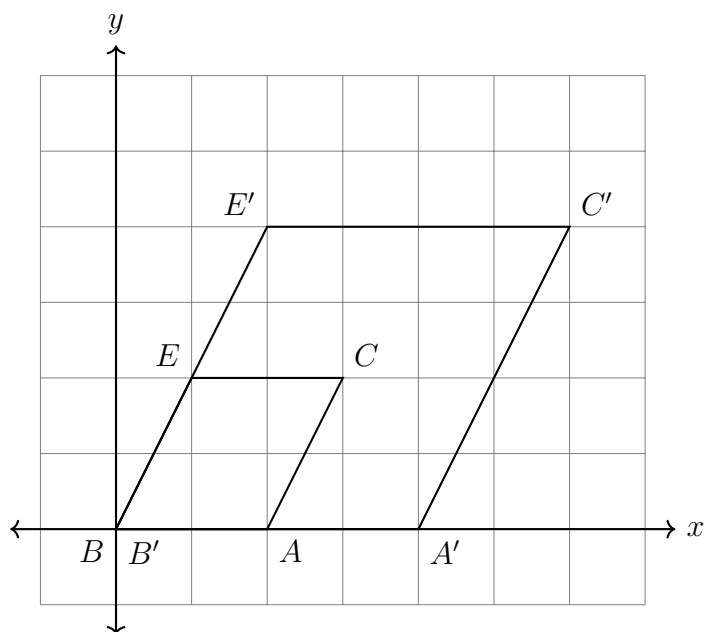
10. A dilation centered at  $A$  with scale factor  $k = 2$  maps  $\triangle ABC \rightarrow \triangle ADE$ . Given the lengths  $AC = 9$ ,  $BC = 6$ ,  $AB = 12$ , and  $DE = 14$ .

How long are  $AD$  and  $AE$ ?



11. Given  $\triangle ABC \sim \triangle DEF$ ,  $m\angle A = 35^\circ$ , and  $m\angle F = 105^\circ$ . Find  $m\angle C$ .

12. What is the transformation mapping parallelogram  $BECA \rightarrow B'E'C'A'$ , as shown in the diagram. (hint: Dilations must specify the center and scale factor.)



13. A dilation maps  $\triangle ABC \rightarrow \triangle ADE$ . Given  $AB = 9$ ,  $AC = 11.1$ ,  $BC = 6$ ,  $DE = 14$ .

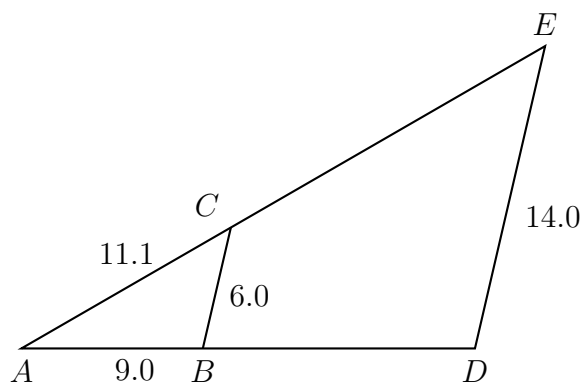
Find the scale factor and side lengths:

$$k =$$

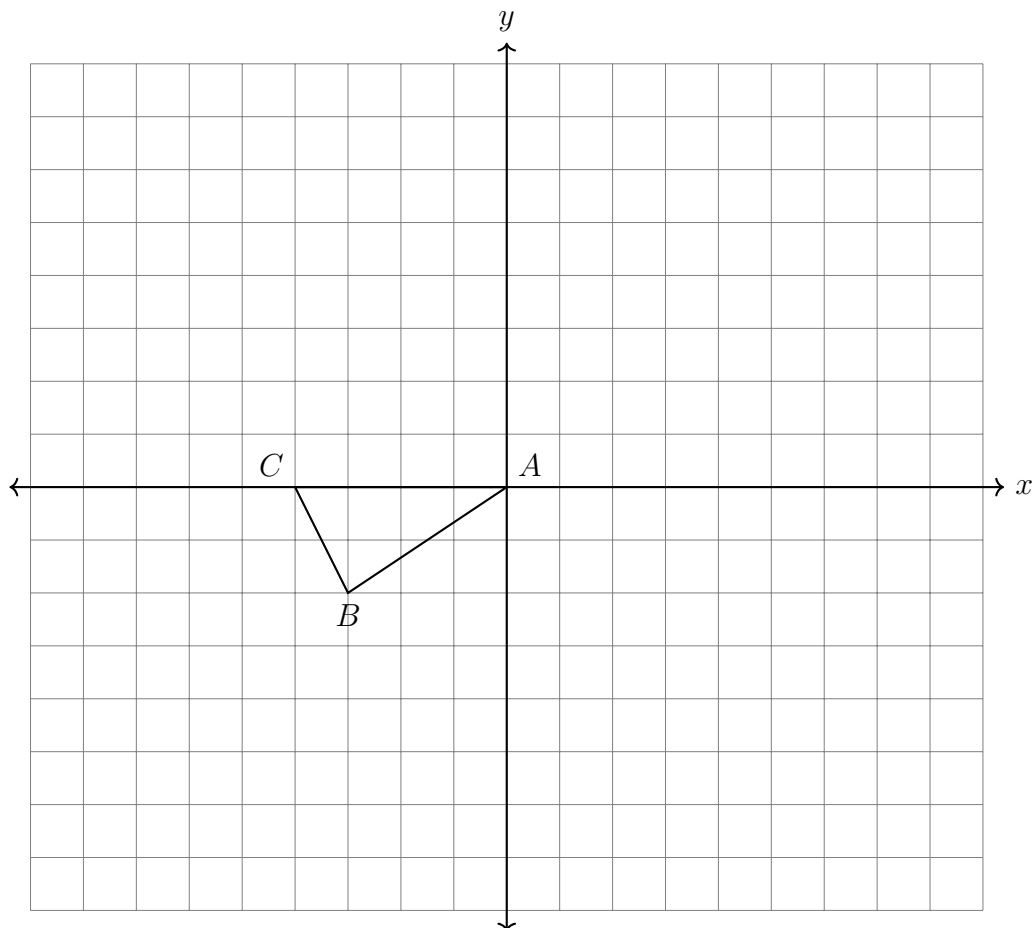
$$AD =$$

$$AE =$$

$$BD =$$



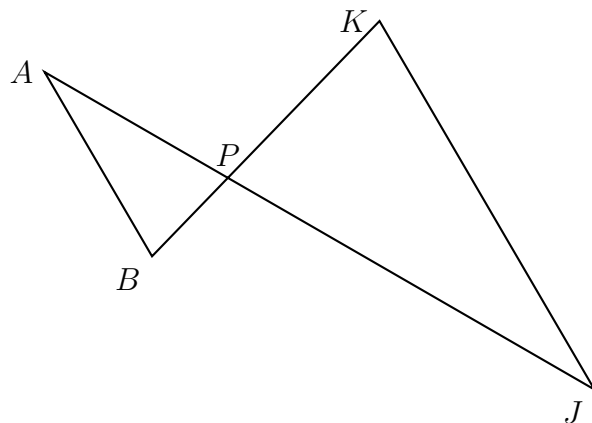
14. Reflect  $\triangle ABC$  across the  $x$ -axis. Then, dilate  $\triangle A'B'C'$  by a factor of  $k = 2$  centered at the origin to produce  $\triangle A''B''C''$ . Plot and label the two triangles in the graph below.



15. Two triangles are shown with  $P$  the intersection of  $\overline{AJ}$  and  $\overline{BK}$ .

(a) Justify  $\angle APB \cong \angle JPK$ .

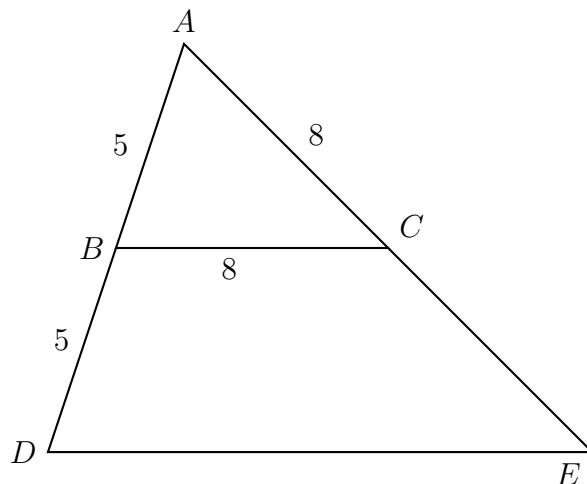
(b) What angle must be congruent to  $\angle B$  to prove  $\triangle ABP \sim \triangle JKP$  by *angle-angle similarity*?



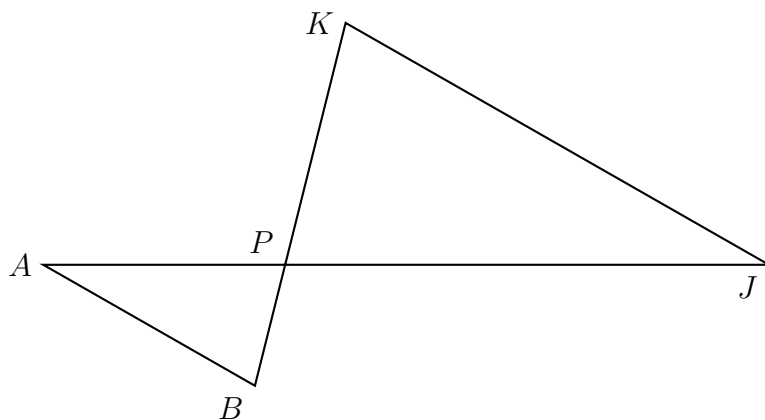
16. Triangle  $ADE$  is drawn with  $\overline{BC} \parallel \overline{DE}$ , as shown. Given  $AB = 5$ ,  $BC = 8$ ,  $AC = 8$ , and  $BD = 5$ .  $m\angle A = 72^\circ$ .

(a) Find  $DE$ .

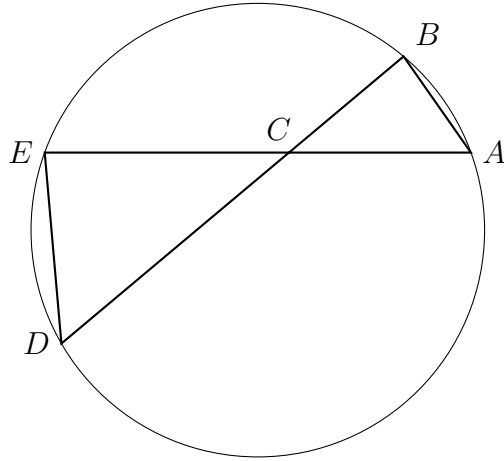
(b) Find  $m\angle ABC$  and  $m\angle E$ .



17. Given  $\triangle ABP \sim \triangle JKP$  as shown below.  $AB = 10$ ,  $AP = 9.0$ ,  $PK = 12.5$ , and  $JK = 25$ . Find  $JP$  and  $BP$ .



18. In the diagram below, the chords  $\overline{AE}$  and  $\overline{BD}$  intersect at  $C$ , with  $\triangle ABC \sim \triangle DEC$ ,  $BC = 4$ ,  $AC = 5$ , and  $BD = 11.5$ . Determine the length of  $\overline{CE}$ .



19. In the diagram below  $\triangle ABC \sim \triangle DEF$ ,  $DE = x+4$ ,  $AB = 12$ ,  $AC = 21$ ,  $DF = 2x+4$ . Solve for  $x$ .

