

Name: _____

Date: _____

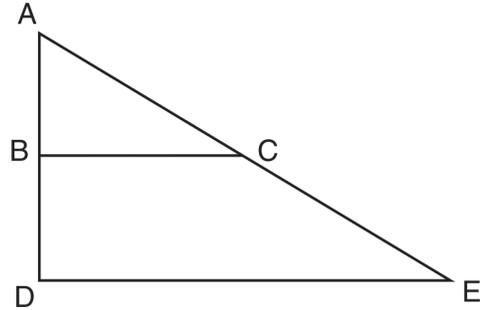
1. A parallelogram must be a rectangle when its

- A. diagonals are perpendicular
- B. diagonals are congruent
- C. opposite sides are parallel
- D. opposite sides are congruent

2. If $\triangle A'B'C'$ is the image of $\triangle ABC$, under which transformation will the triangles *not* be congruent?

- A. reflection over the x -axis
- B. translation to the left 5 and down 4
- C. dilation centered at the origin with scale factor 2
- D. rotation of 270° counterclockwise about the origin

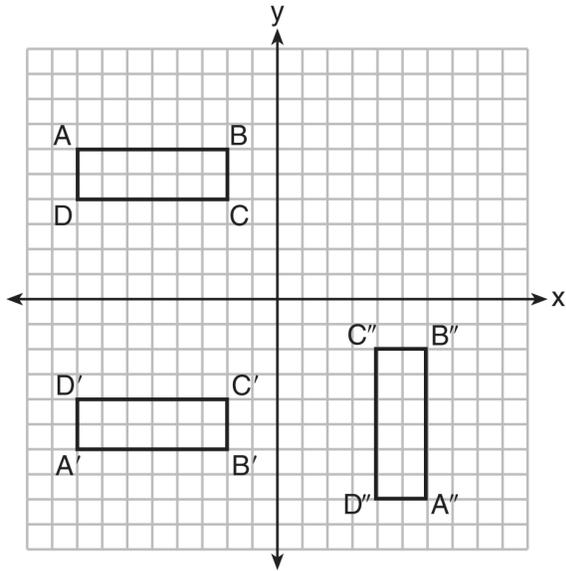
3. The image of $\triangle ABC$ after a dilation of scale factor k centered at point A is $\triangle ADE$, as shown in the diagram below.



Which statement is always true?

- A. $2AB = AD$
- B. $\overline{AD} \perp \overline{DE}$
- C. $AC = CE$
- D. $\overline{BC} \parallel \overline{DE}$

4. A sequence of transformations maps rectangle $ABCD$ onto rectangle $A''B''C''D''$, as shown in the diagram below.



Which sequence of transformations maps $ABCD$ onto $A'B'C'D'$ and then maps $A'B'C'D'$ onto $A''B''C''D''$?

- A. a reflection followed by a rotation
- B. a reflection followed by a translation
- C. a translation followed by a rotation
- D. a translation followed by a reflection

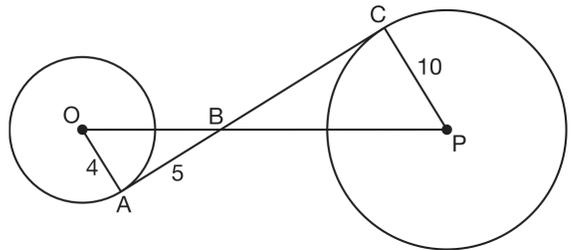
5. In the diagram of parallelogram $FRED$ shown below, \overline{ED} is extended to A , and AF is drawn such that $AF \cong DF$.



If $m\angle R = 124^\circ$, what is $m\angle AFD$?

- A. 124°
- B. 112°
- C. 68°
- D. 56°

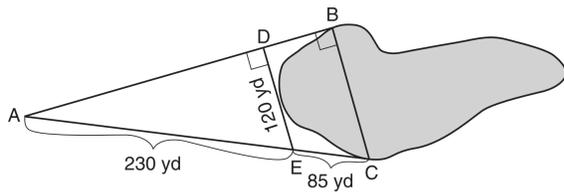
6. In the diagram shown below, \overline{AC} is tangent to circle O at A and to circle P at C , \overline{OP} intersects \overline{AC} at B , $OA = 4$, $AB = 5$, and $PC = 10$.



What is the length of \overline{BC} ?

- A. 6.4
- B. 8
- C. 12.5
- D. 16

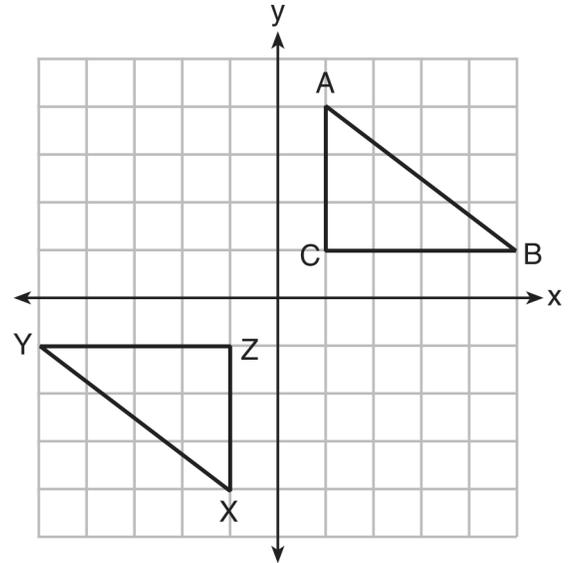
7. To find the distance across a pond from point B to point C , a surveyor drew the diagram below. The measurements he made are indicated on his diagram.



Use the surveyor's information to determine and state the distance from point B to point C , to the nearest yard.

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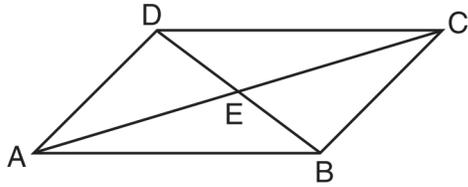
8. In the diagram below, $\triangle ABC$ and $\triangle XYZ$ are graphed.



Use the properties of rigid motions to explain why $\triangle ABC \cong \triangle XYZ$.

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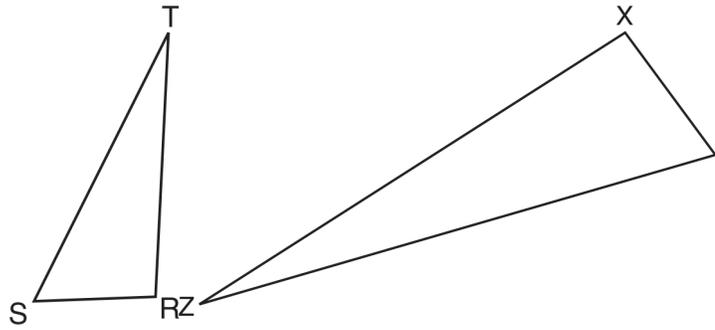
9. In parallelogram $ABCD$ shown below, diagonals \overline{AC} and \overline{BD} intersect at E .



Prove: $\angle ACD \cong \angle CAB$

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10. Triangles RST and XYZ are drawn below. If $RS = 6$, $ST = 14$, $XY = 9$, $YZ = 21$, and $\angle S \cong \angle Y$, is $\angle RST$ similar to $\angle XYZ$? Justify your answer.



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