

READY, SET, GO!

Name _____

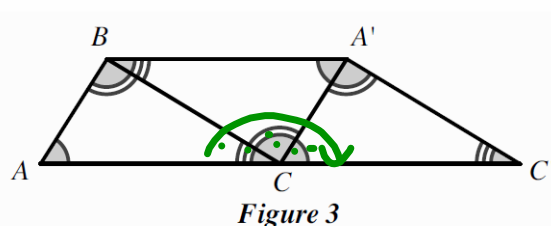
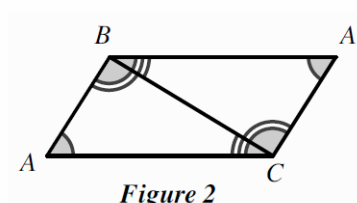
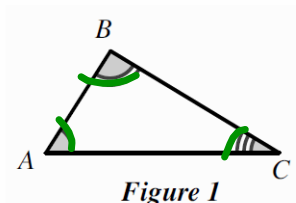
Period _____

Date _____

READY

Topic: Are you ready for a test on module 5?

Figure 1 has been rotated 180° about the midpoint in side BC to form figure 2. Figure 1 was then translated to the right to form figure 3.



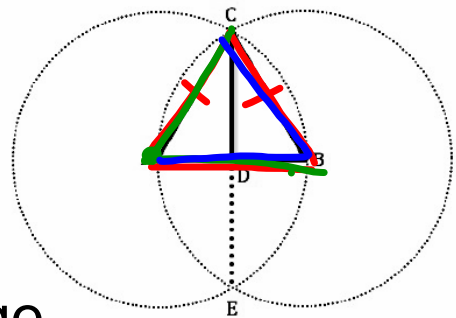
1. Use figure 3 to explain how you know the exterior angle $\angle BCC''$ is equal to the sum of the 2 remote interior angles $\angle BAC$ and $\angle ABC$.
2. Use figure 3 to explain how you know the sum of the angles in a triangle is always 180° .
 $\angle A + \angle B + \angle C = 180$ in the diagram
~~in the diagram~~
3. Use figure 2 to explain how you know the sum of the angles in a quadrilateral is always 360° .
4. Use figure 2 to explain how you know that the opposite angles in a parallelogram are congruent.
5. Use figure 2 to explain how you know that the opposite sides in a parallelogram are parallel and congruent.
6. Use figure 2 to explain how you know that when two parallel lines are crossed by a transversal, the alternate interior angles are congruent.
7. Use figure 2 and/or 3 to explain how you know that when two parallel lines are crossed by a transversal, the same-side interior angles are supplementary.

SET

Topic: Writing proofs

8. Prove that \overline{CD} is an altitude of $\triangle ABC$.

Use the diagram and write a 2 column proof.



See student work on next page.

9. Use the diagram to prove that $\triangle ABC$ is an isosceles triangle. (Choose your style.)

$\odot A \cong \odot B$ given
 $\overline{AB} \cong \overline{AC}$ def. of radii
 $\overline{AB} \cong \overline{BC}$ def. of radii
 So $\overline{AC} \cong \overline{BC}$ by transitive
 Thus $\triangle ABC$ is isosceles, def. of isosceles \triangle

10. Use the diagram to prove that $m\angle A \cong m\angle B$. (Choose your style.)

SET
Topic: Writing proofs
8. Prove that \overline{CD} is an altitude of $\triangle ABC$.
Use the diagram and write a 2 column proof.

\overline{CE} bisects \overline{AB}
 $\overline{CE} \perp \overline{AB}$
 \overline{CD} included in \overline{CE}
 \overline{CD} altitude of $\triangle ABC$

2 congruent circles, same points
 Circles form perpendicular line from intersection

Student Work
Constructing bisector of AB using overlapping circles, creates a 90 degree.

SET
Topic: Writing proofs
8. Prove that \overline{CD} is an altitude of $\triangle ABC$.
Use the diagram and write a 2 column proof.

We know $AD \cong BD$,
 so point D (where they meet) is the center, so by connecting D and C, we have our altitude

9. Use the diagram to prove that $\triangle ABC$ is an isosceles triangle. (Choose your style.)

mid point, kinda segment bisector, or reflection point proof, creates a 90 degree.

SET
Topic: Writing proofs
8. Prove that \overline{CD} is an altitude of $\triangle ABC$.
Use the diagram and write a 2 column proof.

Statements	Reasons
$OA \cong OB$	Given
$AD \cong BD$	\overline{CD} divides triangle evenly in half
$AC \cong BC$	substitution, see below example
$\overline{CD} \perp \overline{AB}$	same line
$\triangle ACD \cong \triangle BCD$	by SAS

\overline{AB} is 180° def of straight line
 \overline{CD} is divided directly in half
 each angle is 90°
 two angles equaling in 180

\overline{CD} is altitude because right angles and passes through vertex.

9. Use the diagram to prove that $\triangle ABC$ is an isosceles triangle. (Choose your style.)

$OA \cong OB$ by given
 $AD \cong BD$ by def of radius

triangles congruence: SAS, both contain 90 degrees.

SET
Topic: Writing proofs
8. Prove that \overline{CD} is an altitude of $\triangle ABC$.
Use the diagram and write a 2 column proof.

$\overline{CD} \perp \overline{AB}$
 its a 60°, 60°, 60° equilateral, so LA and LB
 are 60°, LC is divided into 30 and 30, so \overline{CD} is 90° to \overline{AB}

triangle sum proof: sum is 180/3 equal angles. Along with an angle bisector of 30, this creates a 90 degree angle. 30-60-90 triangle.

GO

Topic: Connecting algebra with parallelograms

Use what you know about triangles and parallelograms to find each measure.

11. \overline{XZ}

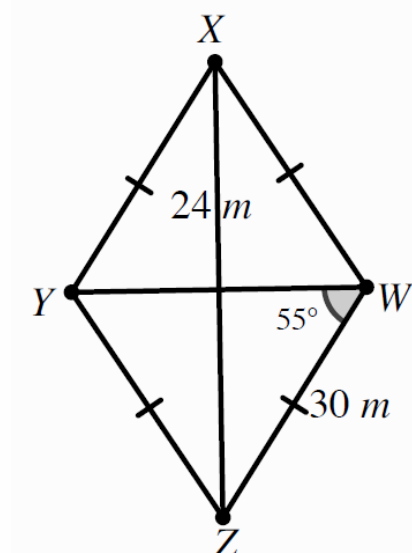
12. $m\angle XYZ$

13. $m\angle XYW$

14. \overline{YX}

15. $m\angle YXZ$

16. \overline{YW}



- 17. \overline{LG}
- 18. \overline{HF}
- 19. $m\angle EHG$
- 20. $m\angle FEH$
- 21. $m\angle ELF$
- 22. \overline{FG}
- 23. \overline{EG}
- 24. $m\angle FGE$

