SECONDARY MATH II // MODULE 5

GEOMETRIC FIGURES – 5.9

5.9

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.

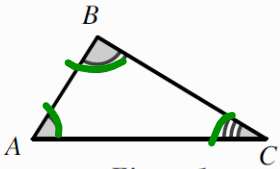


Figure 1

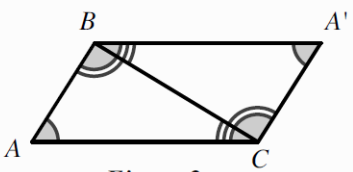


Figure 2

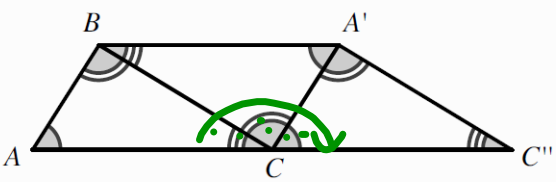


Figure 3

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 180º.

$\angle A + \angle B + \angle C = 180$ in the diagram

3. Use figure 2 to explain how you know the sum of the angles in a quadrilateral is always 360º.

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.

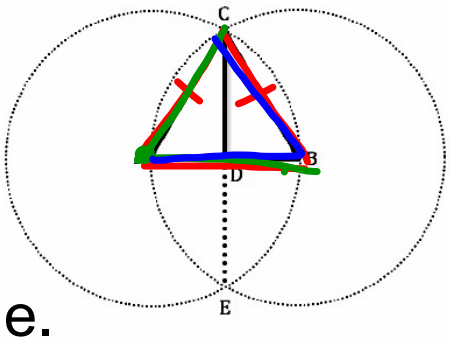
6. Use figure 2 to explain how you know that when two parallel lines are crossed by a transversal, the alternate interior angles are congruent.

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 ΔABC.
Use the diagram and write a 2 column proof.



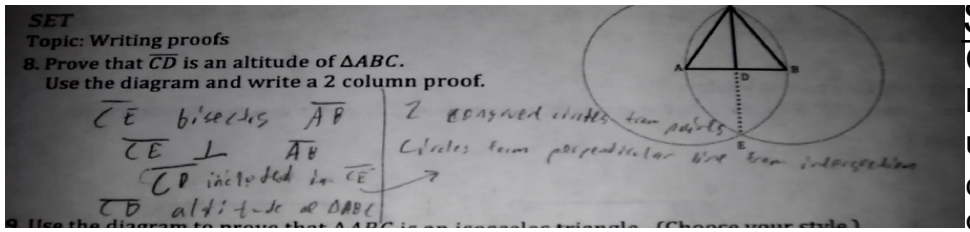
See student work on next page.

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

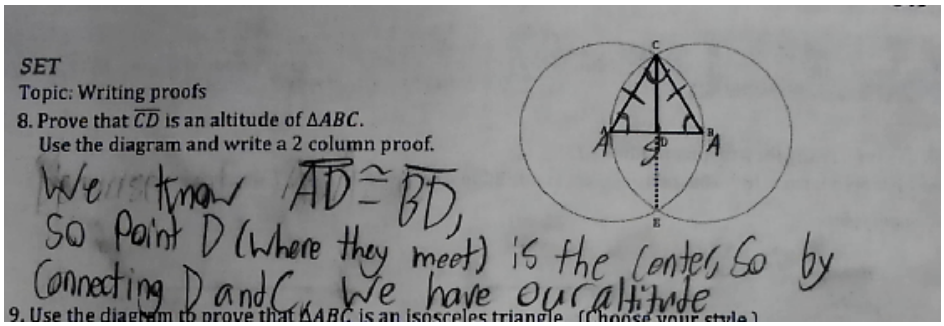
$\odot A \cong \odot B$ given
$\overline{AB} \cong \overline{AC}$ def. of radii
$\overline{AB} \cong \overline{BC}$ def of radii
So $\overline{AC} \cong \overline{BC}$ by transitive
Thus $\triangle ABC$ is isosceles, def of isosceles $\triangle$

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

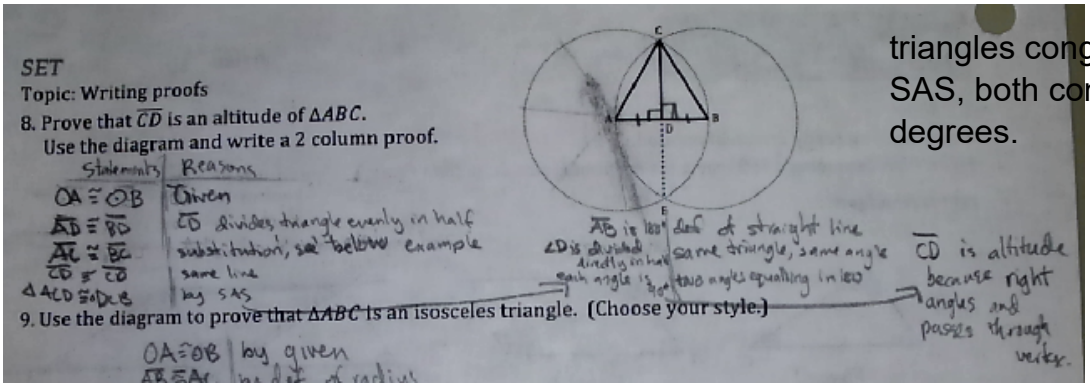
Student Work



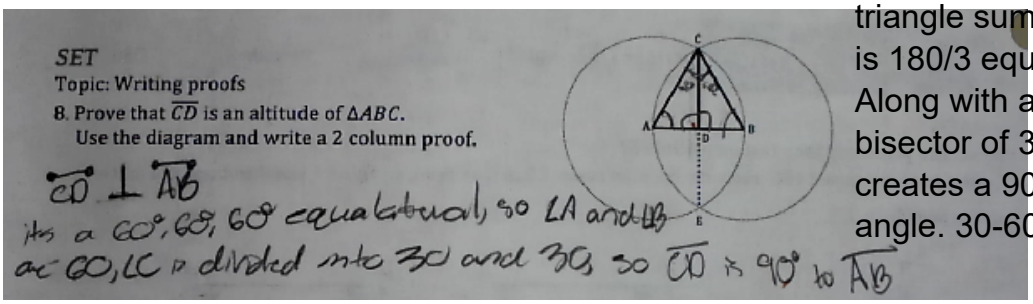
Constructing bisector of AB using overlapping circles, creates a 90 degree.



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



triangles congruence: SAS, both contain 90 degrees.



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. $\overline{XZ}$

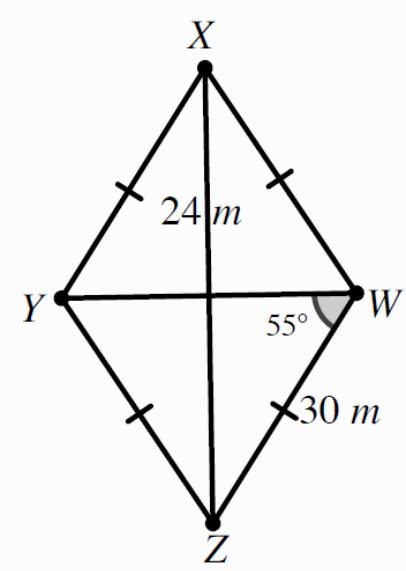
12. $m\angle XYZ$

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. $m\angle FGE$