

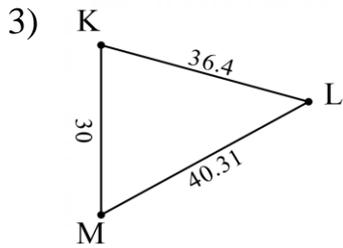
Date	Day	Assignment
Tuesday	11/29/22	Notes: 5.1 Notes
Wednesday	11/30/22	HW: 5.1 Worksheet
Thursday	12/01/22	Notes: 5.2 Notes
Friday	12/02/22	HW: 5.2 Worksheet
Monday	12/05/22	Notes: 5.3 Notes
Tuesday	12/06/22	HW: 5.3 Worksheet
Wednesday	12/07/21	Chapter 5 Project
Thursday	12/08/21	HW: Semester Review Worksheet #1

HW Hints:

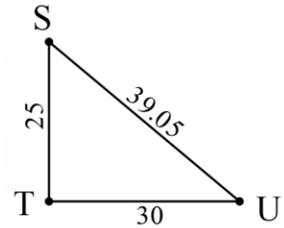
- Check your answers, and view solutions for your corrections at www.washeschools.net/DRHSmath
- Check out our class YouTube channel: <https://www.youtube.com/channel/UCh9fLvgw9metmOulb6vO5Zw>
- Show all work and draw the diagrams for each problem.
- Students who complete every assignment this semester will get a 2% bonus.
- For extra practice, visit www.khanacademy.org

Check out www.mathguy.us for extra help.

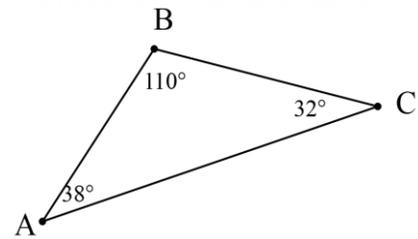
Examples 3 – 4: Identify the largest and smallest angle in each triangle. Reminder: diagrams are not always drawn to scale.



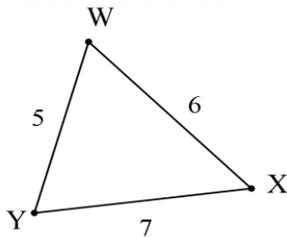
4) **You try!**



5) $\triangle ABC$ is shown to the right. List the sides of the triangle in order from least to greatest.

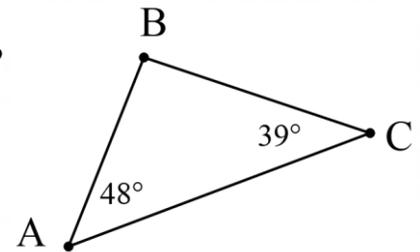


6) List the angles of the triangle shown to the left in order from least to greatest.



7) $\triangle ABC$ is shown to the right. Which statement below is TRUE?

- A) BC is the largest side in the triangle.
- B) AC is the smallest side in the triangle.
- C) AC is the largest side in the triangle.
- D) It is not possible to find out which side is the largest in the triangle.



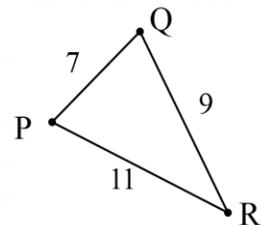
Reminder of inequality symbols:

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8) Which statement(s) below are true for the triangle shown? Select all that apply.

- A) $m\angle P < m\angle Q$
- B) $m\angle Q < m\angle R$
- C) $m\angle R < m\angle Q$
- D) $m\angle R < m\angle P < m\angle Q$



Exploration #2: Use the following link to explore the lengths of sides in a triangle:

<https://www.geogebra.org/m/K5CEeBEu>

Click on the slider to change the lengths of segments. Move the vertices around to form (connect) a triangle.

- Can any combination of side lengths form a triangle?
- Find a combination of side lengths that cannot form a triangle. Write down the side lengths:
- Make a **conjecture** (“guess”) about the relationship of the lengths of sides that must be true in order for a triangle to be formed.

Triangle Inequality Theorem	<p>For any real triangle, the sum of any two side lengths must be _____ than the third side length.</p>	
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Examples: For #9 – 14, decide if the given sides could form a real triangle or not.

9) 3, 10, 5

10) 7, 7, 13

11) 5, 5, 10

You try!

12) 9, 6, 11

13) 4, 8, 4

12) 3, 18, 12

13) Create side lengths for a triangle that would *not* connect to form a real triangle. Explain your reasoning for choosing these side lengths.

Range of values:

Examples: For #16 – 20, given two known sides of a triangle, find the range of values for the missing side that would create a real triangle.

15) 5, 12

16) 8, 8

17) 10, 3

You try!

18) 22, 30

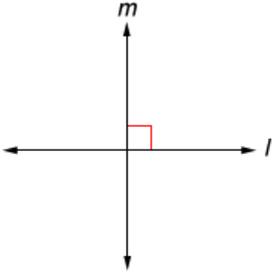
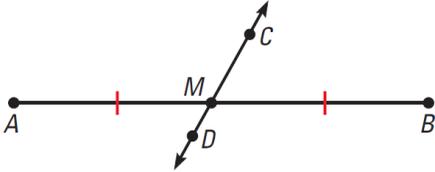
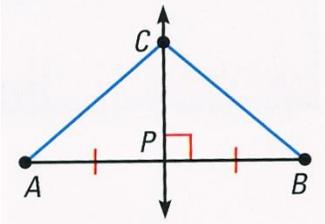
19) 1, 2

20) 10, 10

5.2 Notes: Perpendicular Bisectors

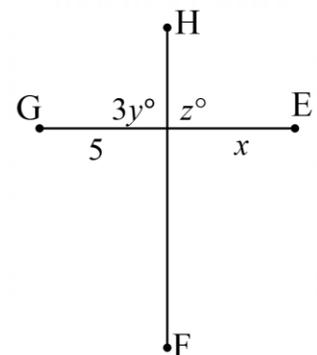
Objectives:

- Students will be able to use perpendicular bisectors to solve problems.
- Students will be able to use the Perpendicular Bisector Theorem.

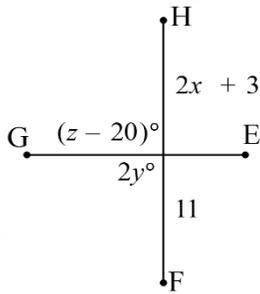
<p>Perpendicular (reminder)</p>	<p>If two lines are perpendicular (\perp), then they _____ to create four _____ angles.</p>	<p>$m \perp l$:</p> 
<p>Segment Bisector (reminder)</p>	<p>A segment bisector divides a segment into two _____ segments.</p>	<p>\overleftrightarrow{CD} bisects \overline{AB}.</p> 
<p>Perpendicular Bisector</p>	<p>If a segment is a perpendicular bisector, then it is _____ to the segment and also _____ the segment.</p>	<p>\overleftrightarrow{CP} is the \perp bis of \overline{AB}.</p> 

For Examples #1 – 3: Given: HF is the \perp bis of GE .

- 1) Find x . 2) Find y . 3) Find z .



You Try! For Examples #4 – 6: Given: GE is the \perp bis of HF .



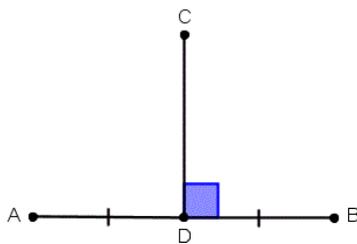
4) Find x .

5) Find y .

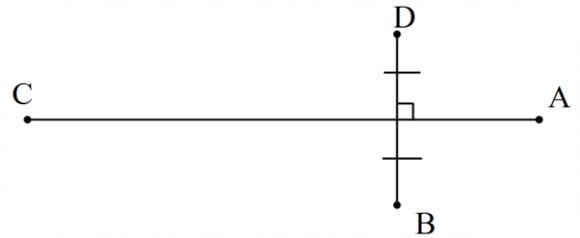
6) Find z .

For Examples 7 – 8, fill in the blanks to create a true statement for each diagram.

7) _____ \perp bis of _____



8) **You try!** _____ \perp bis of _____



Exploration #1: Explore what happens when points are on a perpendicular bisector. Click on this link:

[https://www.geogebra.org/m/KonTw1JA#:~:text=Perpendicular%20Bisector%20Theorem%20\(seliass33\)%20A,the%20endpoints%20of%20that%20segment.](https://www.geogebra.org/m/KonTw1JA#:~:text=Perpendicular%20Bisector%20Theorem%20(seliass33)%20A,the%20endpoints%20of%20that%20segment.)

- 1) Click on the box that says “Points on Bisector”.
- 2) Move points F and G around on the bisector. What do you notice?

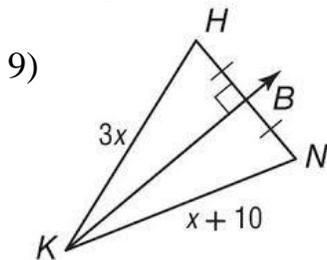
- 3) Unclick the box that says “Points on Bisector”. Click the box for “Points NOT on bisector”. What do you notice?

- 4) Make a **conjecture** (“guess”) about what happens when points are on a perpendicular bisector.

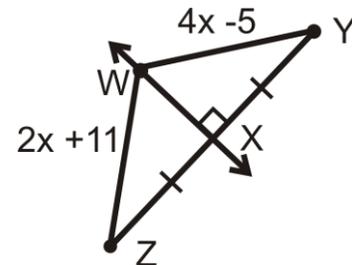
Perpendicular Bisector Theorem

<p>Perpendicular Bisector Theorem</p>	<p>If a point is on the perpendicular bisector of a segment, then it is _____ from the endpoints of the bisected segment.</p>	
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Examples 9 – 10: Find x .



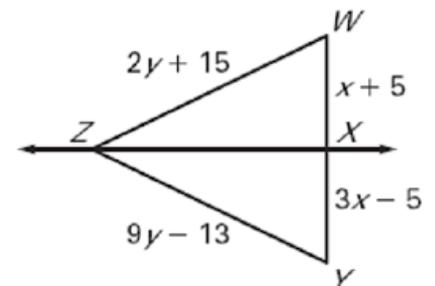
You try! 10)



For #11 – 14: Given that XZ is the \perp bisector of WY .

11) Find x .

12) Find y .



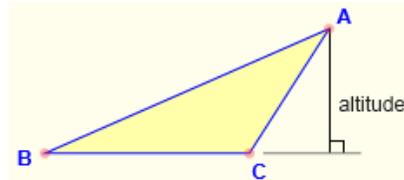
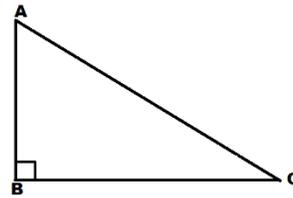
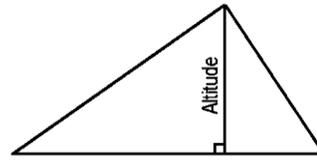
13) Find the perimeter of $\triangle WYZ$.

14) Find the area of $\triangle WYZ$ if $ZX = 20.7$.

Hint: $A = \frac{1}{2}bh$

Altitude of a Triangle

If a segment is an **altitude of a triangle**, then it is drawn from one _____ and is _____ to the **opposite side**.

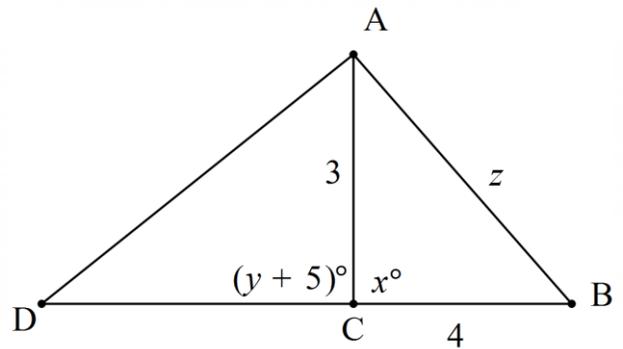


Examples 5 - 7: Given the diagram shown, where AC is an altitude.

5) Find x .

6) Find y .

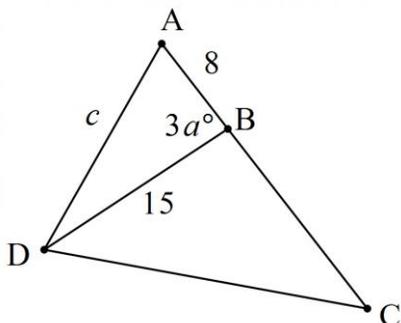
7) Find z .



You try! Examples 8 - 9: Given that DB is an altitude.

8) Find a .

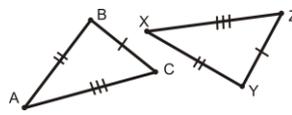
9) Find c .



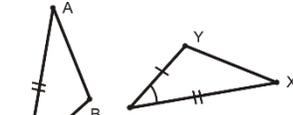
Challenge: Find the area of $\triangle ABD$.

Methods to Prove Congruent Triangles (Reminder)

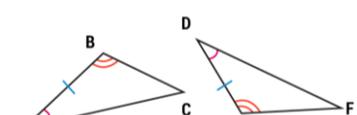
SSS



SAS



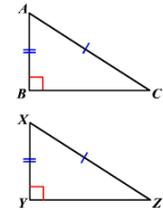
ASA



AAS

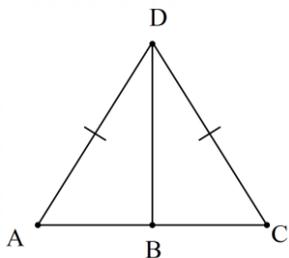


HL (right triangles only)

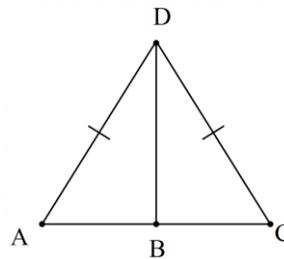


For examples 10 – 14, determine why each pair of triangles are congruent. Use the diagram and the given information.

10) Given: DB is a median.

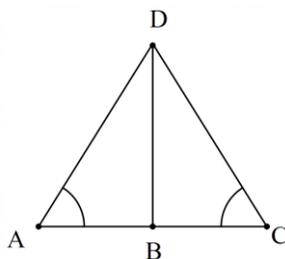


11) Given: DB is an altitude.

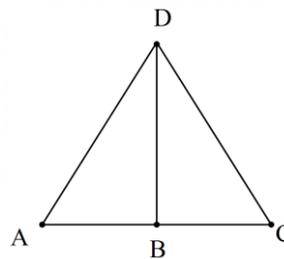


You try #12 and 13!

12) Given: DB is an altitude



13) Given: DB is the \perp bisector of AC .



Challenge: Both #10 and #13 have more than one solution. See if you can find an alternative way to prove the triangles are congruent.

Ch 5 Study Guide

- 5.1:
 - Inequalities in a Triangle:
 - The largest angle is opposite the longest side.
 - The smallest angle is opposite the smallest side.
- 5.2:
 - Perpendicular bisector: A line or segment that is both perpendicular to and bisects a segment.
 - Perpendicular Bisector Theorem: If a point is on the perpendicular bisector of a segment, then that point is equidistant to the endpoints of the segment.
- 5.3:
 - Median: A segment connecting a vertex of a triangle and the midpoint of the opposite side.
 - Altitude: A segment drawn from a vertex of a triangle, perpendicular to the opposite side.