



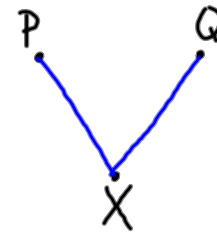
HAPPY  
TURKEY  
DAY!!!  
😊

The **distance** between two objects is

the length of the shortest path connecting them.

Point X is said to be **equidistant** from points P and Q if

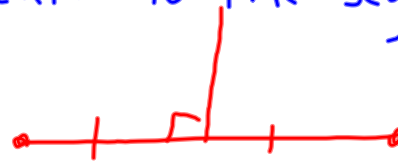
P and Q are the same distance from X

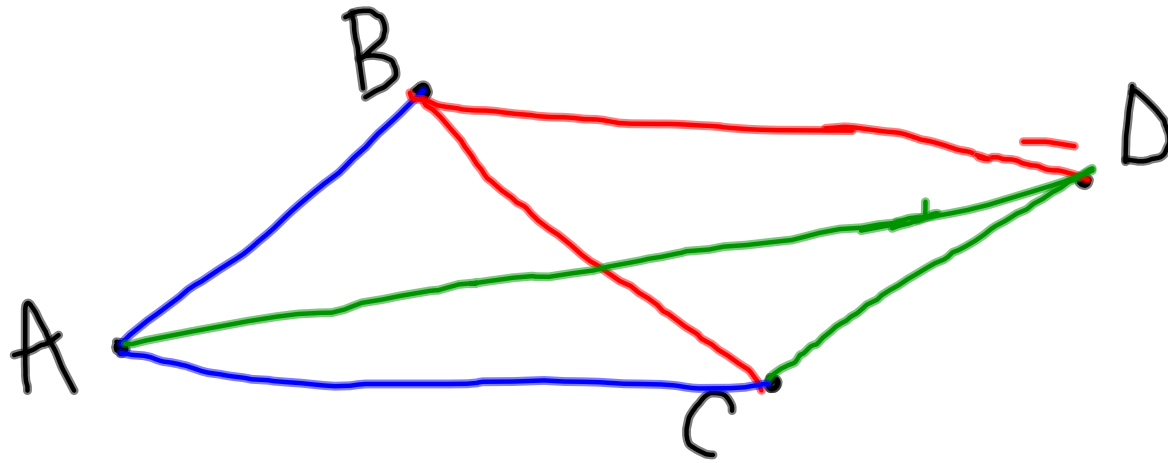


In other words, X is equidistant from P and Q if  $\overline{XP} \cong \overline{XQ}$

The **perpendicular bisector** of a segment is

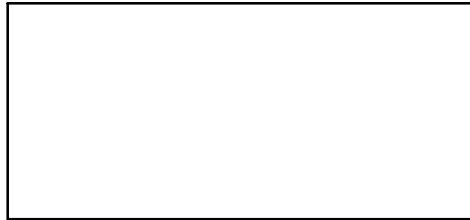
the line that bisects and is perpendicular to the segment.



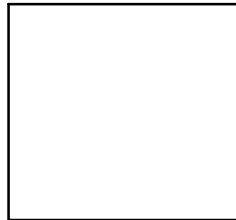


Postulate: A line segment is the shortest path between two points.

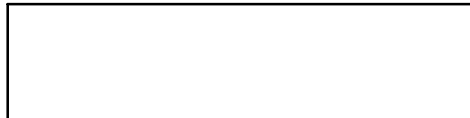
Take your half-sheet of paper and put it on the table so it looks like this:



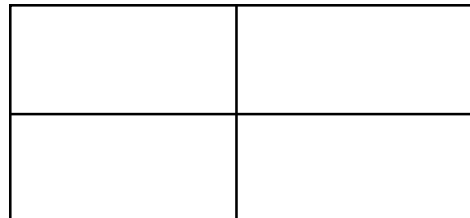
Fold it in half so that it looks like this... and then unfold it



Fold it in half so that it looks like this... and then unfold it



Your paper should now look like this:



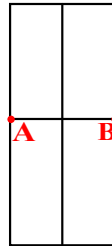
Using a straightedge, trace the line segments that we have just created by folding.

What relationship exists between these line segments?

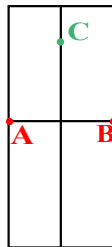
Now turn your paper 90 degrees so it looks like this:



Label the endpoints of the horizontal segment points A and B.



Draw a point anywhere on the vertical segment and call it C.



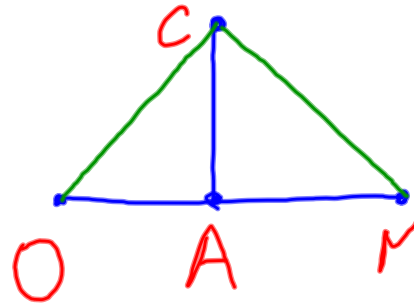
What did you find out?

Draw another point on the vertical segment and call it D.

Measure the distance between A and D **and** the distance between B and D.

What did you find out?

Theorem 25: If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.



Given:  $\overline{CA} \perp \text{bis. } \overline{OM}$

Prove:  $\overline{CO} \cong \overline{CM}$

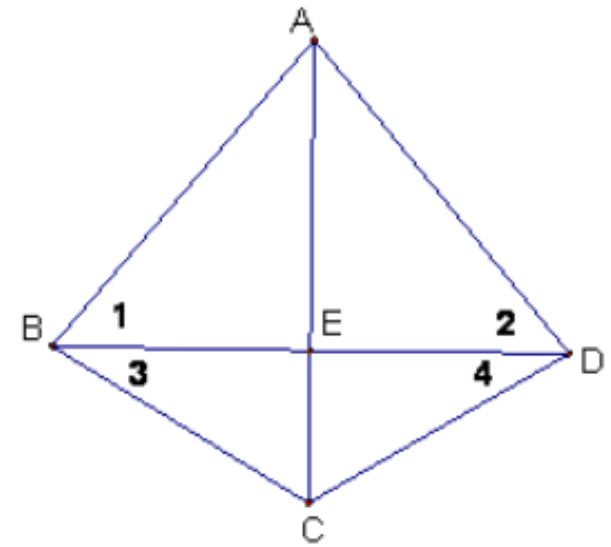
S	R
1. ~~~~~	1. given
2. $\overline{OA} \cong \overline{AM}$	2. def of $\perp$ bis
3. $\angle CAD, \angle CAM$ are rt. $\angle$ s	3. same as 2
4. $\overline{CA} \cong \overline{CA}$	4. Reflexive Prop.
5. $\angle CAD \cong \angle CAM$	5. Rt $\angle$ s are $\cong$
6. $\triangle CAD \cong \triangle CAM$	6. SAS
7. $\overline{CO} \cong \overline{CM}$	7. CPCTC
QED	

Theorem 24: If two points are each equidistant from the endpoints of a segment, then the two points determine the perpendicular bisector of that segment.

Given:  $\angle 1 \cong \angle 2$

$\angle 3 \cong \angle 4$

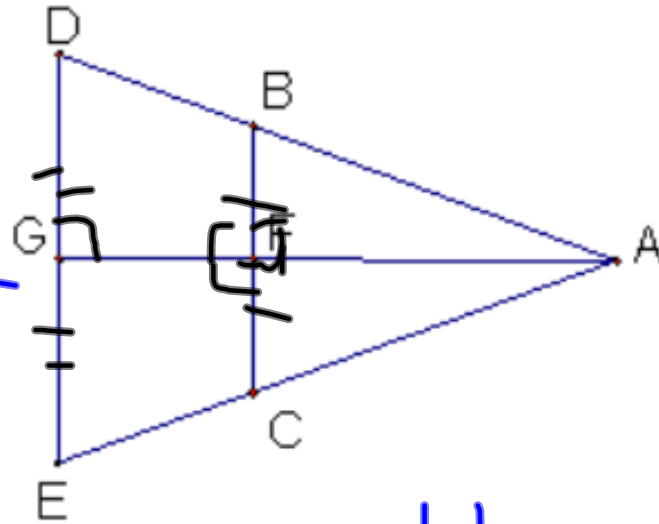
Prove:  $\overline{AC} \perp \text{bis. } \overline{BD}$



Given:  $\overline{AG} \perp \text{bis. } \overline{BC}$   
 $\overline{AG} \perp \text{bis. } \overline{DE}$   
 Prove:  $\overline{BD} \cong \overline{CE}$

1.
2.  $\overline{CA} \cong \overline{BA}$
3.  $\overline{EA} \cong \overline{DA}$

1. given
2. If point on  $\perp$  bis, then its eq. dist. from endpoints.
3. same as 2



# Communicate

I + !!

5<sup>th</sup>

Michael White  
Ryan Strange  
Jayme Johnson

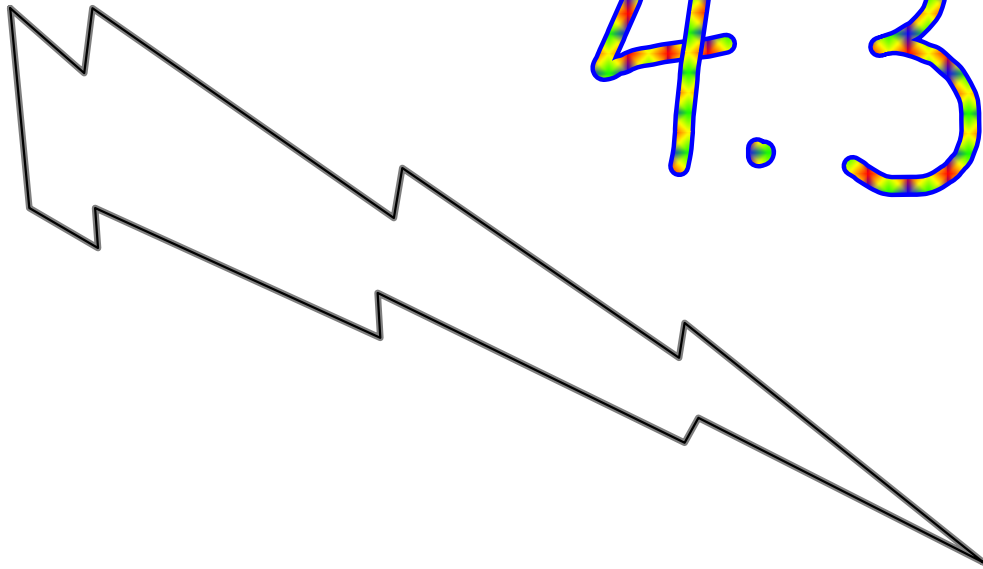
6<sup>th</sup>

Jen Ficek  
Luke Sorensen  
Olivia Casey

Section

4.3

HW

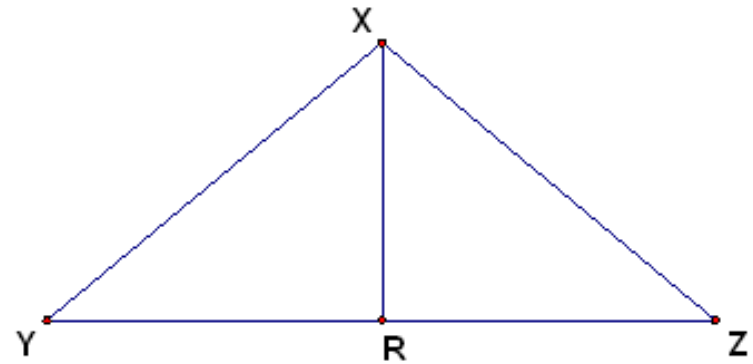


4

Given:  $\overline{XR}$  bisects  $\angle YXZ$

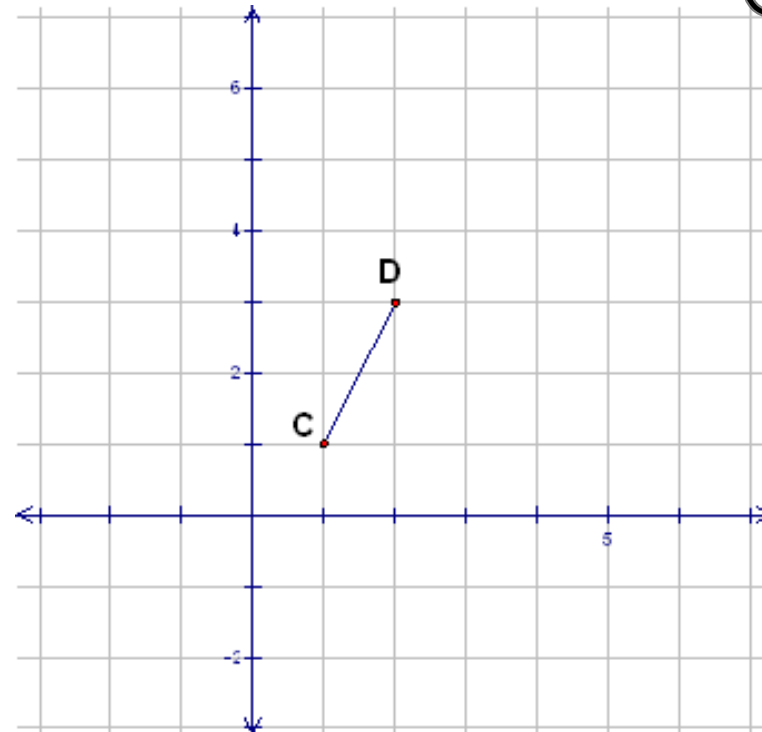
$\angle Y \cong \angle Z$

Conclusion:  $\overline{XR}$  is an altitude



8

If  $\overline{CD}$  is the hypotenuse of a right triangle  $CAD$  and  $A$  has integral coordinates, find all possible values of the coordinates of  $A$ .

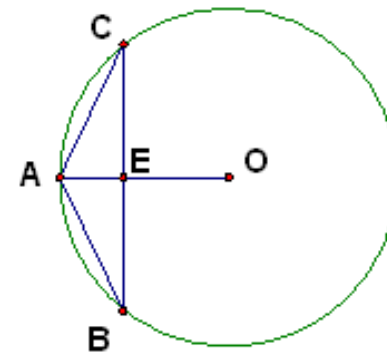


Each coordinate is an INTEGER!!

9

Given:  $\odot O$ ,  $\angle B \cong \angle C$

Conclusion:  $\overline{AO} \perp \overline{BC}$



10

Prove that the median to the base of an isosceles triangle is also an altitude to the base.

13.

Prove that the supplement of a right angle is a right angle.

14.

Is  $b$  perpendicular to  $a$ ? Justify your answer.

