Bell Ringer

Wednesday 1/16

Solve each equation.

1. $x^2 + 9x - 20 = 0$

$\frac{-9 \pm \sqrt{81 + 80(1)(-20)}}{2(1)}$

$\frac{-9 \pm \sqrt{161}}{2}$ -10.8 ≈ 1.8

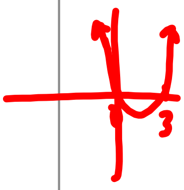
2. $6x^2 = 18x$

$54 - 54 = 0$

$6x^2 - 18x = 0$

$6x(x-3) = 0$

$6x = 0$, $x = 0$ $\qquad$ $x - 3 = 0$, $x = 3$



3. $x^2 - x = -6$

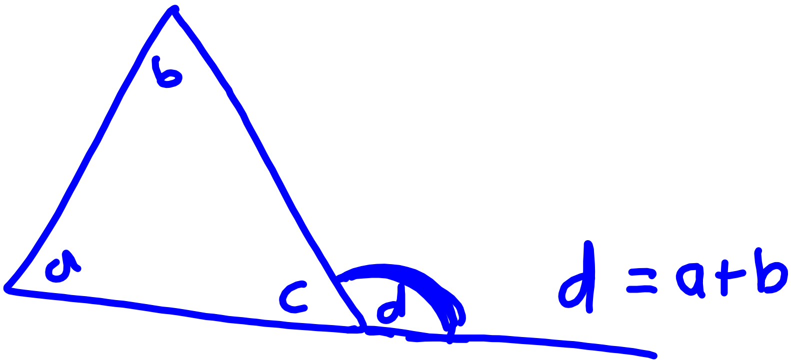
4. $2x^2 + 15x + 18 = 0$

$x = \frac{-15 \pm \sqrt{15^2 - 4(2)(18)}}{2(2)}$

$x = -6$

$x = -\frac{3}{2}$

8.4 Exterior Angles ws due tomorrow - questions?

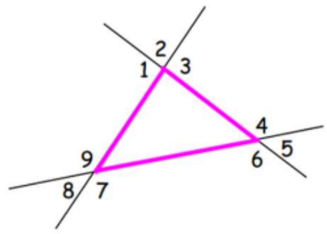


Section 8.4 Exterior Angles Name: ________________________Hr:_____

Exterior Angle Theorem: The exterior angle is equal to the sum of the two remote interior angles.

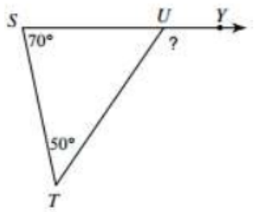
1. Which of the angles in the figure are not exterior angles of the triangle?

2. Which of the angles are the exterior angles of the triangle?
(Hint: there are six of them.)



Solve for the variable or the missing angle in the following problems:

1.



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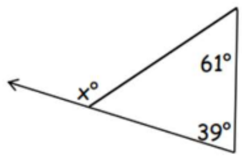

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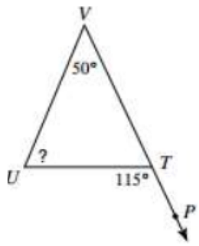

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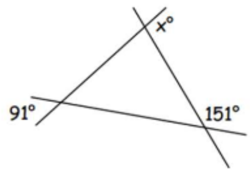

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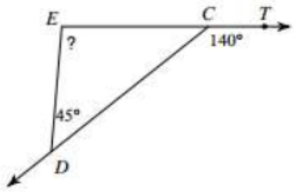

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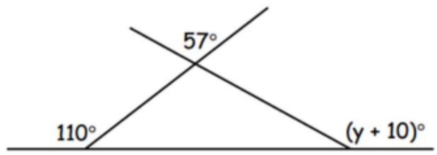

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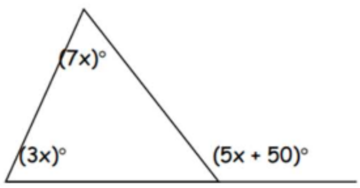

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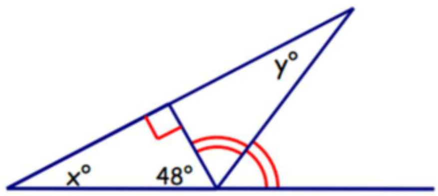
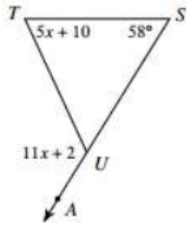
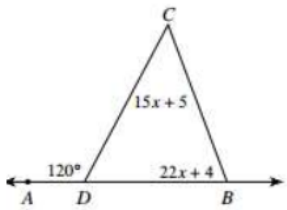
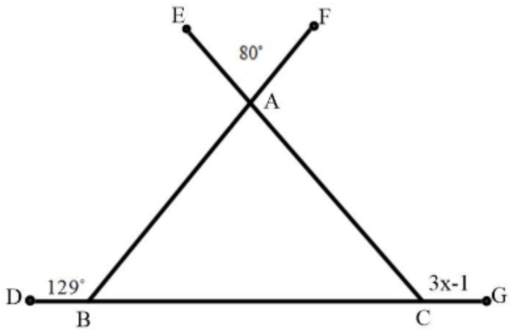


9. 

10. 

11. Given: $m\angle DBA = 129^\circ$
$m\angle EAF = 80^\circ$
$m\angle ACG = 3x - 1$
Prove: $x = 44$



Statement	Reason
1. $m\angle DBA = 129^\circ$	1.
2. $m\angle DBA + m\angle ABC = 180^\circ$	2.
3. $129^\circ + m\angle ABC = 180^\circ$	3.
4. $m\angle ABC = 51^\circ$	4.
5. $m\angle EAF = 80^\circ$	5.
6. $m\angle CAB = 80^\circ$	6.
7. $m\angle ACG = 3x - 1$	7.
8. $m\angle ABC + m\angle CAB = m\angle ACG$	8.
9. $3x - 1 = 51^\circ + 80^\circ$	9.
10. $3x - 1 = 131^\circ$	10.
11. $3x = 132^\circ$	11.
12. $x = 44$	12.

Constructions

Inscribed Triangles: Construct the three Angle Bisectors. Place the compass on the incenter and draw a circle connecting the incenter to a point on any side perpendicular to the incenter.

Circumscribed Triangles: Construct the three Perpendicular Bisectors. Place the compass on the Circumcenter and draw a circle from one of the vertices.

* *Perpendicular Bisectors*

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

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

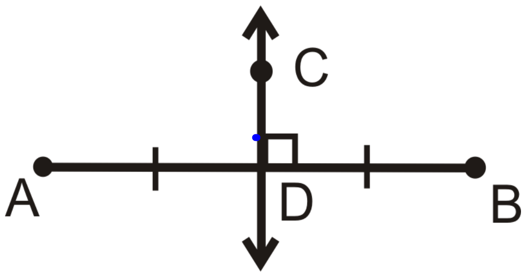
Medians of a Triangle

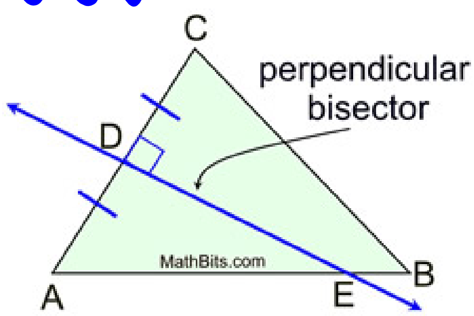
Definition of a Median: A segment whose endpoints are a vertex and the midpoint of the opposite side.

Centroid: The point of concurrency of the medians.

Medians of a Triangle Theorem: The medians of a triangle are concurrent at a point that is two thirds the distance from each vertex to the midpoint of the opposite side.

Perpendicular Bisector

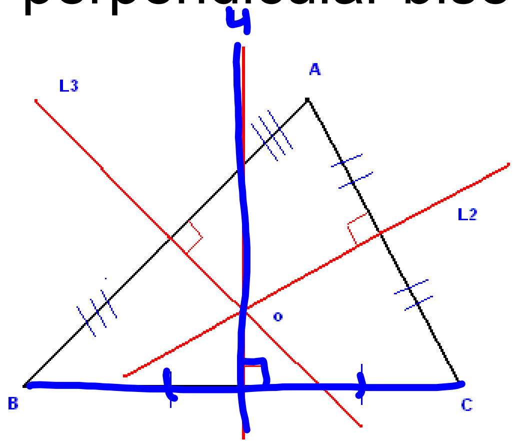




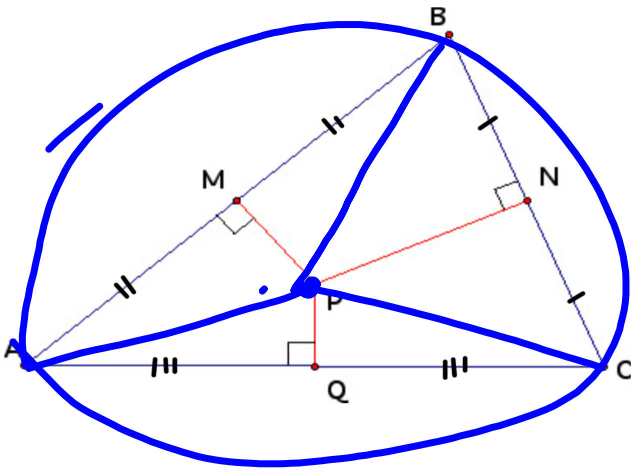
L3 is the perpendicular bisector of AB

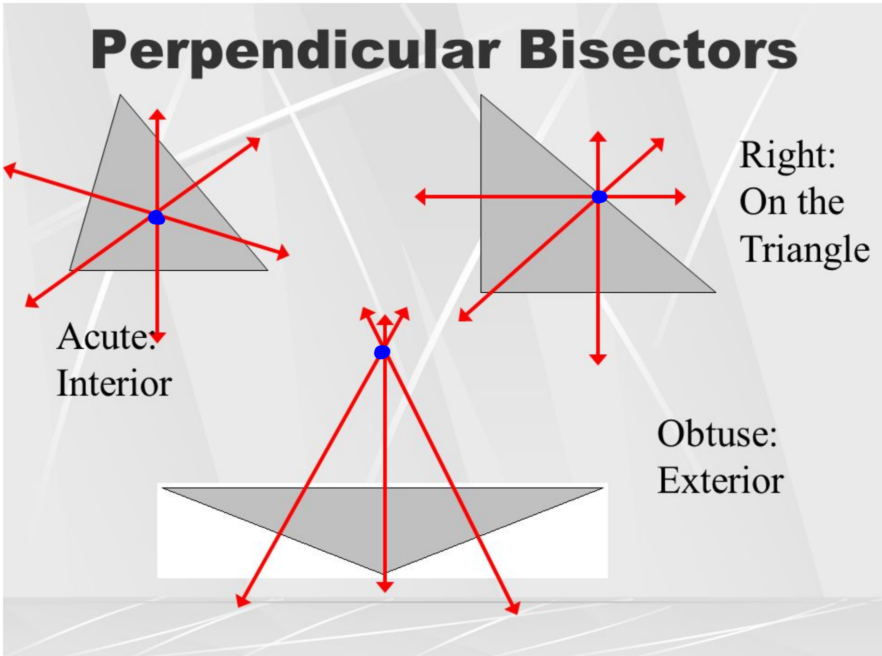
L1 is the perpendicular bisector of BC

L2 is the perpendicular bisector of AC



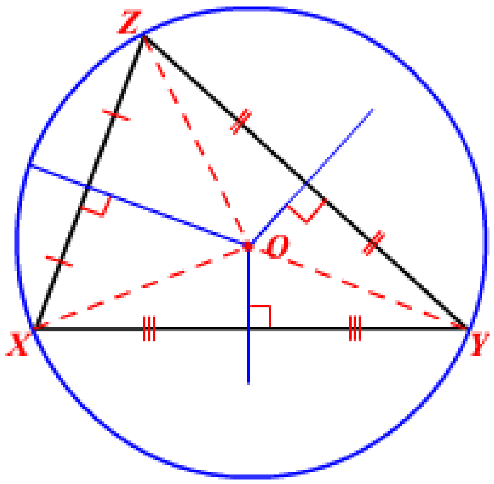
Perpendicular Bisectors meet at the Circumcenter




Perpendicular Bisectors
Right:
On the
Triangle
Acute:
Interior
Obtuse:
Exterior

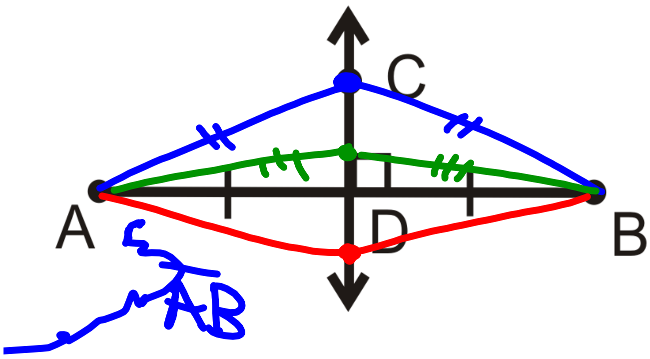
The circumcenter is the center of the circumscribed triangle.

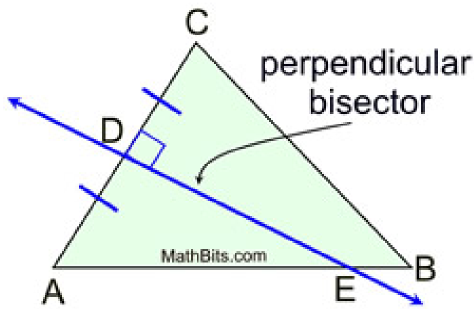
Radius goes from circimcenter to each vertex on the triangle



Perpendicular Bisector Theorem:

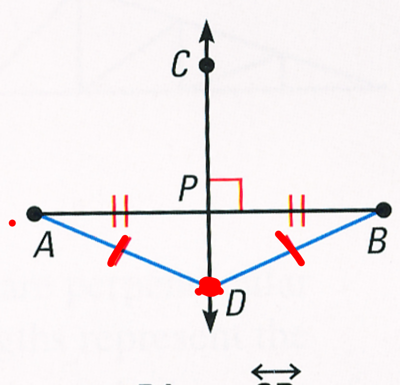
If a point is on the perpendicular bisector of a segment, then the point is equidistant from the endpoints of the segment...





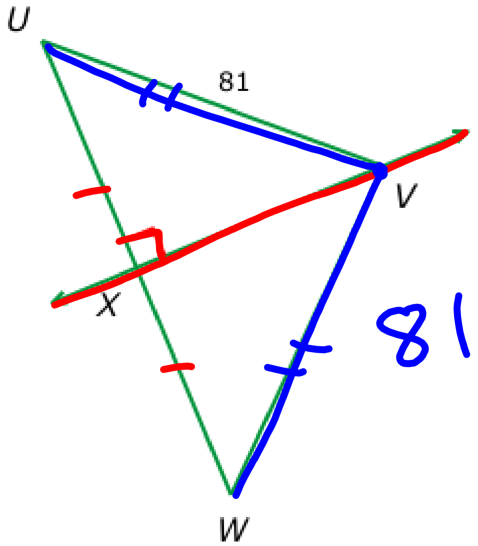
Converse of the Perpendicular Bisector Theorem:

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

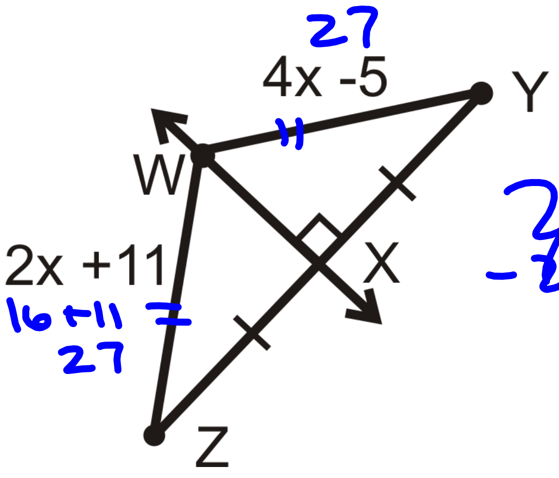


D is on $\overleftrightarrow{CP}$.

If XV is a perpendicular bisector, what is the length of VW?



Solve for x



$2x + 11 = 4x - 5$

$-2x \qquad -2x$

$11 = 2x - 5$

$+5 \qquad +5$

$\frac{16}{2} = \frac{2x}{2}$

$8 = x$

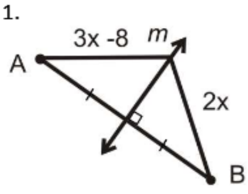
due Friday

Name: _______________________Hr:_____ **Section 8.5 Perpendicular Bisectors**

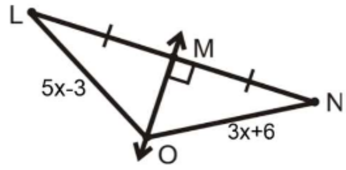
Perpendicular Bisector Theorem: If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.

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

1.



2.



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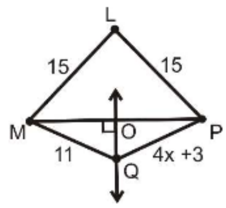
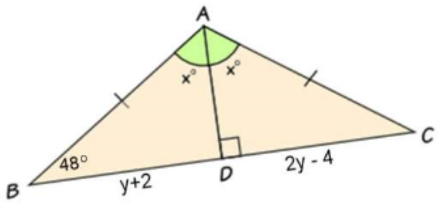
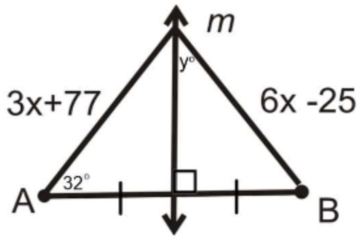


For Questions 4-5 find x and y.

4.



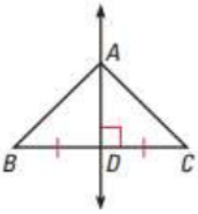
5.



Prove the Perpendicular Bisector Theorem

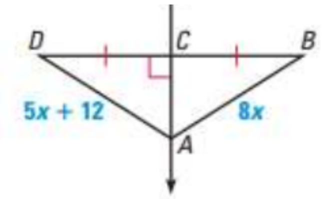
6. Given: $\overleftrightarrow{AD}$ is the $\perp$ bisector of $\overline{BC}$

Prove: $AB = AC$



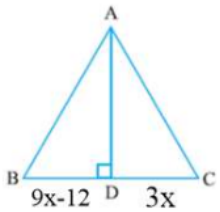
Statement	Reason
1. $\overleftrightarrow{AD}$ is the $\perp$ bisector of $\overline{BC}$	1.
2. $\overline{DB} \cong \overline{DC}$	2.
3. $\angle ADC$ and $\angle ADB$ are right angles	3.
4. $\angle ADC \cong \angle ADB$	4.
5. $\overline{AD} \cong \overline{AD}$	5.
6. $\triangle ADB \cong \triangle ADC$	6.
7. $\overline{AB} \cong \overline{AC}$	7.
8. $AB = AC$	8.

7. Given: $\overleftrightarrow{AC}$ is the $\perp$ bisector of $\overline{DB}$
Prove: $AB = 32$



Statement	Reason
1. $\overleftrightarrow{AC}$ is the $\perp$ bisector of $\overline{DB}$	1.
2. $\overline{AB} = \overline{AD}$	2.
3. $AD = 5x + 12$; $AB = 8x$	3.
4. $8x = 5x + 12$	4.
5. $3x = 12$	5.
6. $x = 4$	6.
7. $AB = 8(4)$	7.
8. $AB = 32$	8.

8. Given: $AB = AC$
$\angle ADB = 90^\circ$
Prove: $BD = 6$



Statement	Reason
1. $AB = AC$	1.
2. $\overline{AD} \perp \overline{BC}$	2.
3. $\overline{BD} = \overline{DC}$	3.
4. $DC = 3x$ $BD = 9x - 12$	4.
5. $9x - 12 = 3x$	5.
6. $6x - 12 = 0$	6.
7. $6x = 12$	7.
8. $x = 2$	8.
9. $BD = 9(2) - 12$	9.
10. $BD = 6$	10.