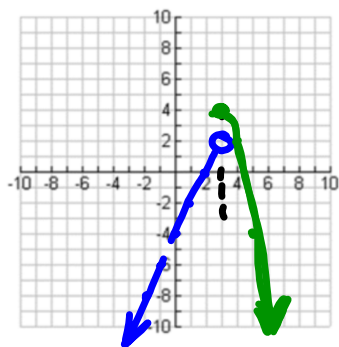


Grab a Bell Ringer and find and sit in your new seat!

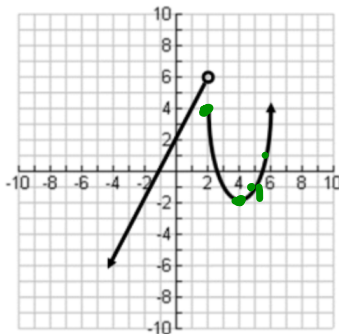
Monday 1/14

1. Graph the piecewise function.

$$f(x) = \begin{cases} 2x - 4, & x < 3 \\ -2(x-3)^2 + 4, & x \geq 3 \end{cases}$$



2. Write a piecewise function for the graph below and state their domains.

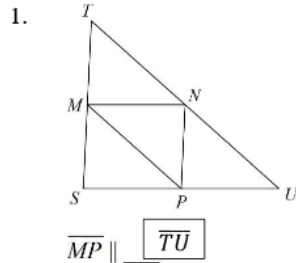


$$f(x) = \begin{cases} 2x + 2 & x < 2 \\ (x-4)^2 - 2 & x \geq 2 \end{cases}$$

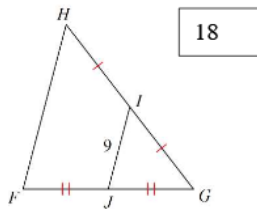
Correct 8.3 Midsegment Proofs ws

8.3 Midsegment Proofs

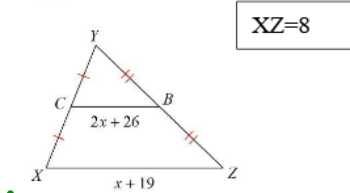
Name the parallel segment.



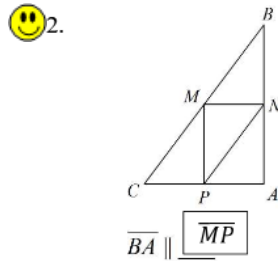
3. Find HF



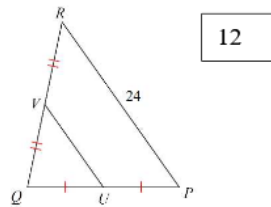
5. Find XZ



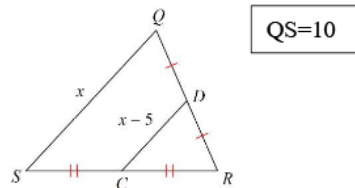
Name: _____ Key _____



4. Find UV



6. Find QS



Graph A, B, and C. Determine the midsegment \overline{EF} that joins \overline{AB} and \overline{BC} in each triangle. Show that the midsegment is parallel to \overline{AC} and half its length.

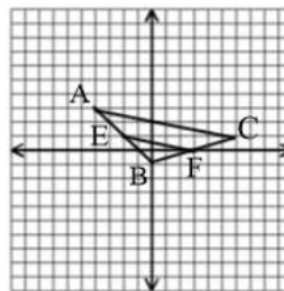
7) A (-4, 3) B(0,-1) C (6, 1)

Midpoint of \overline{AB} : E (-2,1)

Midpoint of \overline{BC} : F (3,0)

Slope of \overline{AC} : $\frac{1}{5}$ Distance of \overline{AC} : $\sqrt{104} \approx 10.2$

Slope of \overline{EF} : $\frac{1}{5}$ Distance of \overline{EF} : $\sqrt{26} \approx 5.1$

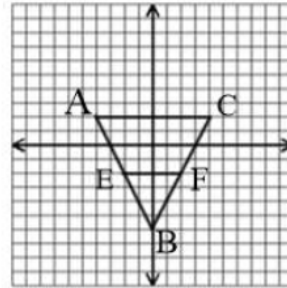


8) A (-4, 2) B(0,-6) C (4, 2)
Midpoint of \overline{AB} : E (-2, -2)

Midpoint of \overline{BC} : F (2, -2)

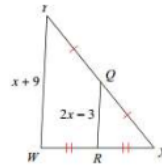
Slope of \overline{AC} : 0 Distance of \overline{AC} : 8

Slope of \overline{EF} : 0 Distance of \overline{EF} : 4



9. Given: \overline{QR} is a midsegment of $\triangle XYW$

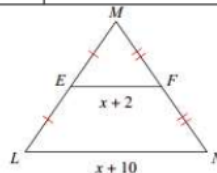
Prove: $x = 5$



Statement	Reason
1. \overline{QR} is a midsegment of $\triangle XYW$	1. Given
2. $\overline{QR} = \frac{1}{2}\overline{YW}$	2. Midsegments are half the length of the base Midsegment Triangle Theorem
3. $\overline{YW} = x + 9$; $\overline{QR} = 2x - 3$	3. Given
4. $2x - 3 = \frac{1}{2}(x + 9)$	4. Substitution property of equality
5. $4x - 6 = x + 9$	5. Multiplication property of equality
6. $3x - 6 = 9$	6. Subtraction property of equality
7. $3x = 15$	7. Addition property of equality
8. $x = 5$	8. Division property of equality

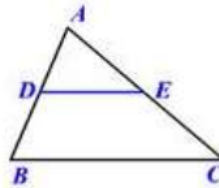
10. Given: \overline{EF} is a midsegment of $\triangle MLN$

Prove: $x = 6$



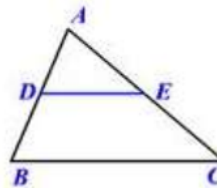
Statement	Reason
1. \overline{EF} is a midsegment of $\triangle MLN$	1. Given
2. $\overline{EF} = \frac{1}{2}\overline{LN}$	2. Midsegments are half the length of the base
3. $\overline{LN} = x + 10$; $\overline{EF} = x + 2$	3. Given
4. $x + 2 = \frac{1}{2}(x + 10)$	4. Substitution property of equality
5. $2x + 4 = x + 10$	5. Multiplication property of equality
6. $x + 4 = 10$	6. Subtraction property of equality
7. $x = 6$	7. Subtraction property of equality

11. Given: $\angle A = 75^\circ$
 $\angle ADE = 80^\circ$
 \overline{DE} is a midsegment in $\triangle ABC$
 Prove: $\angle C = 25^\circ$



Statement	Reason
1. $\angle A = 75^\circ$; $\angle ADE = 80^\circ$	1. Given
3. $\angle A + \angle ADE + \angle AED = 180^\circ$	2. All angles sum to 180° in a triangle Triangle Sum Theorem
4. $75^\circ + 80^\circ + \angle AED = 180^\circ$	3. Substitution property of equality
5. $155^\circ + \angle AED = 180^\circ$	4. Substitution property of equality
6. $\angle AED = 25^\circ$	5. Subtraction property of equality
7. \overline{DE} is a midsegment in $\triangle ABC$	6. Given
8. $\overline{DE} \parallel \overline{BC}$	7. Midsegments are parallel to the base Midsegment Triangle Theorem
9. $\angle AED \cong \angle C$	8. Corresponding angles are congruent
10. $\angle C = 25^\circ$	9. Transitive property of equality Substitution

12. Given: \overline{DE} is a midsegment in $\triangle ABC$
 $\angle AED = 30^\circ$
 $\angle B = 78^\circ$
 Prove: $\angle A = 72^\circ$



Statement	Reason
1. \overline{DE} is a midsegment in $\triangle ABC$	1. Given
2. $\overline{DE} \parallel \overline{BC}$	2. Midsegments are parallel to the base
3. $\angle B = \angle ADE$	3. Corresponding angles are congruent
4. $\angle B = 78^\circ$	4. Given
4. $\angle ADE = 78^\circ$	5. Transitive property of congruence
5. $\angle A + \angle ADE + \angle AED = 180^\circ$	6. All angles sum to 180° in a triangle
6. $\angle AED = 30^\circ$	7. Given
8. $\angle A + 78^\circ + 30^\circ = 180^\circ$	8. Substitution property of equality
9. $\angle A + 108^\circ = 180^\circ$	9. Substitution property of equality
10. $\angle A = 72^\circ$	10. Subtraction property of equality

Turn in hw trackers
weeks 5-6

6.4 - 6.5A ws

6.4 - 6.5B ws

8.1A Congruent Triangles ws

8.1B Congrent Triangle Proofs

8.2 Isosceles Proofs ws

8.3 Midsegments ws

/60

* **Exterior Angles**

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



$$D = A + B$$

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.

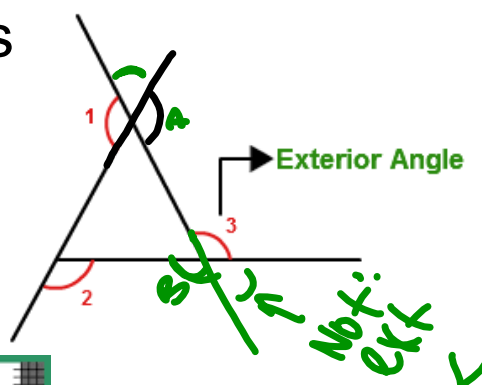
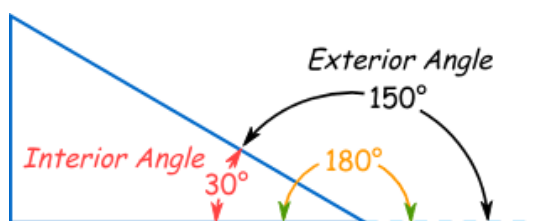
Medians of a Triangle

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

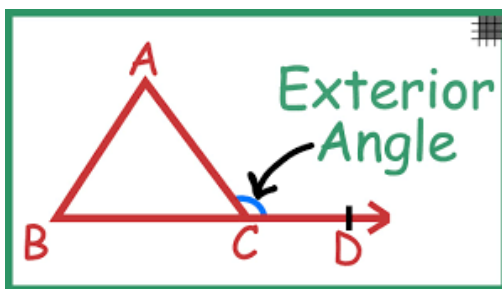
Centroid: The point of concurrency of the medians.

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.

Exterior Angles

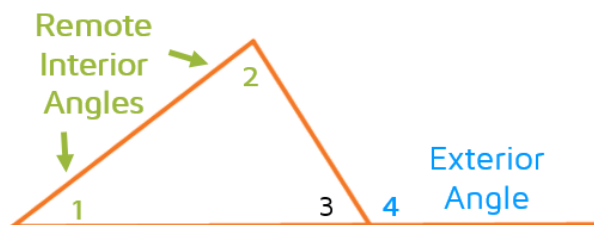


Not ext
ext



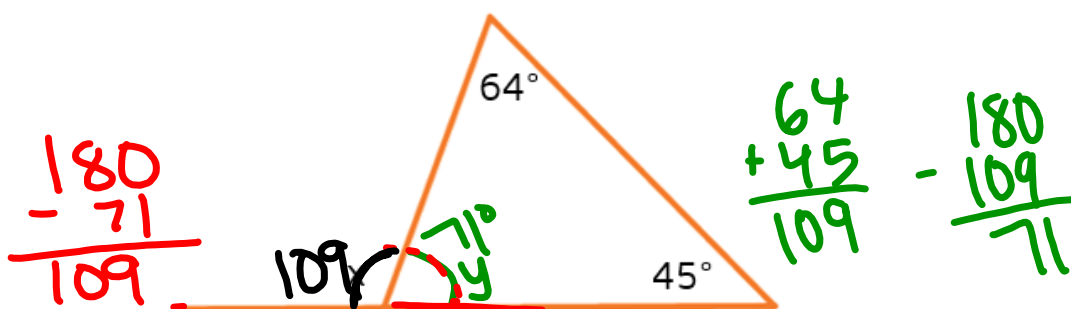
Exterior Angle Theorem:

The exterior angle of a triangle is equal to the sum of the two remote interior angles

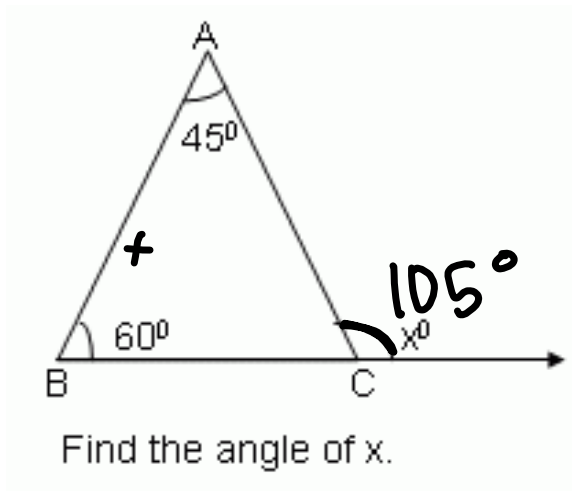


$$m\angle 1 + m\angle 2 = m\angle 4$$

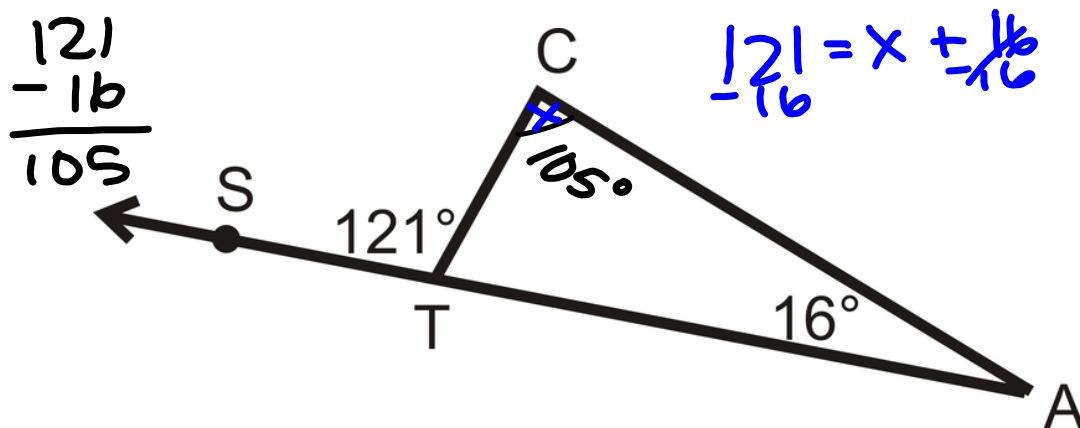
Find the measure of the exterior angle, x



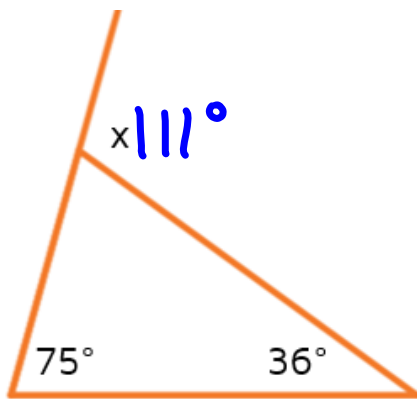
What relationship(s) do you see with the exterior angle and any of the interior angles?



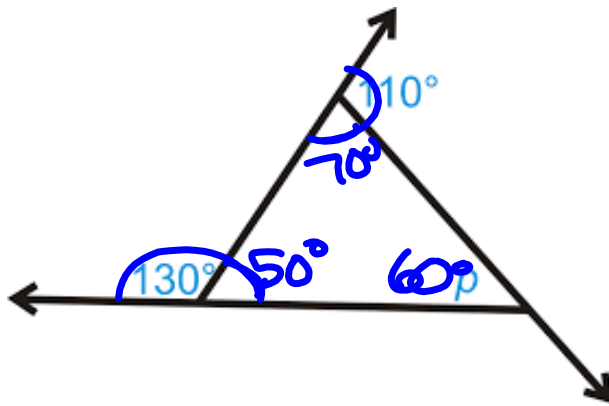
Find the measure of angle C



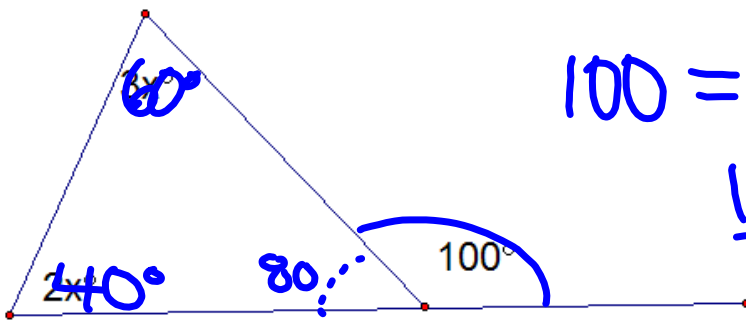
Find the measure of angle x



What is the measure of angle p?



Solve for x

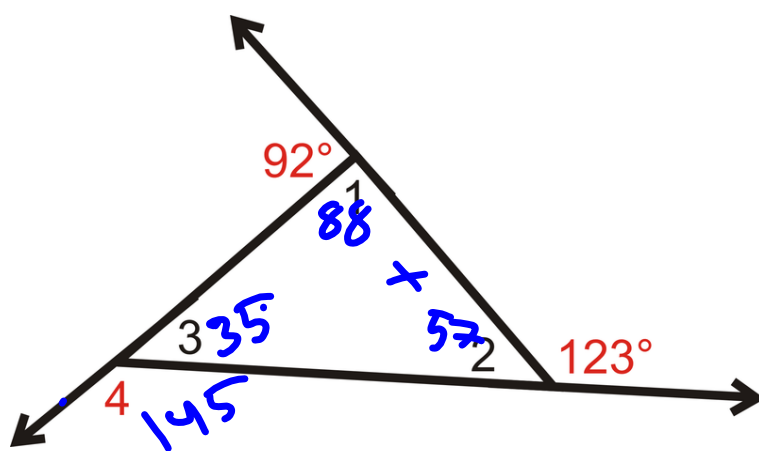


$$100 = 2x + 3x$$

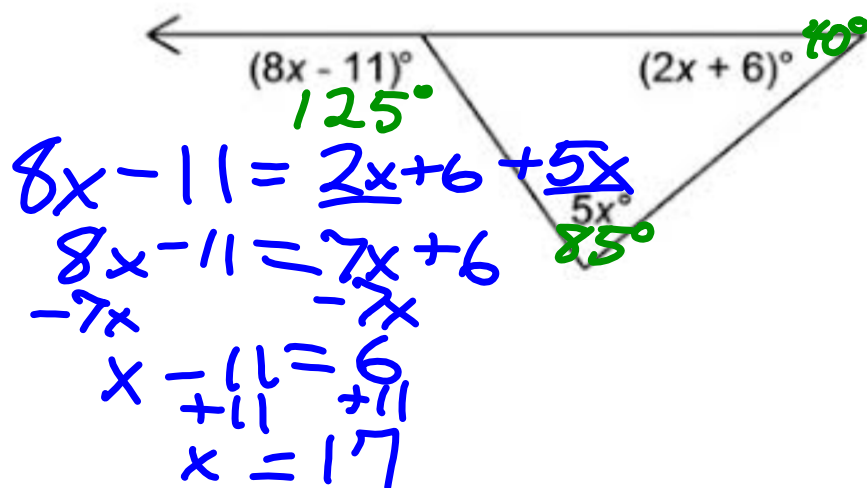
$$\frac{100}{5} = \frac{5x}{5}$$

$$20 = x$$

Find the measure of angles 1, 2, 3, and 4



Solve for x



due Thursday

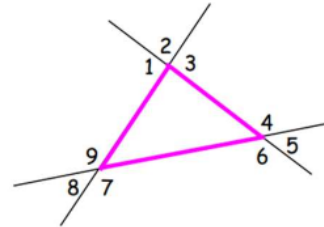
Section 8.4 Exterior Angles

Name: _____ Hr: _____

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

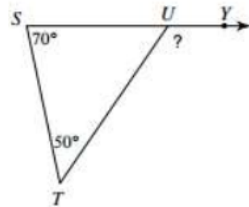
1. Which of the angles in the figure are not exterior angles of the triangle?

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

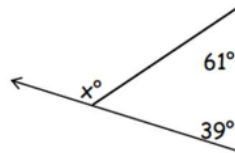


Solve for the variable or the missing angle in the following problems:

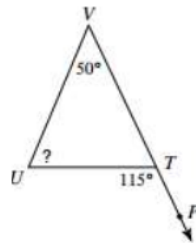
1.



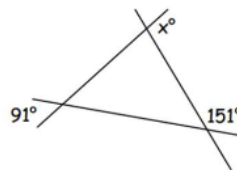
2.



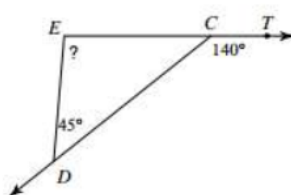
3.



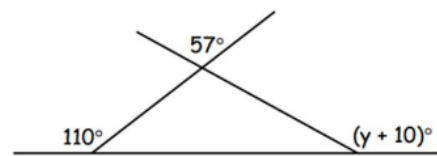
4.



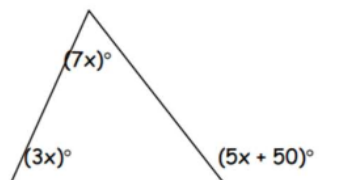
5.



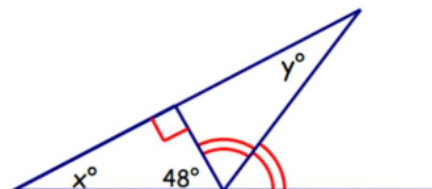
6.

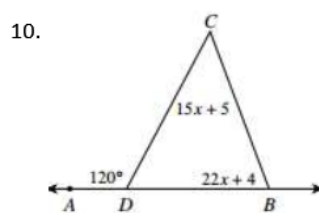
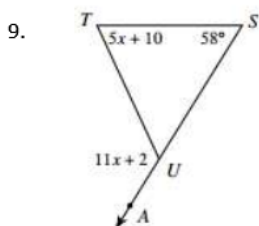


7.

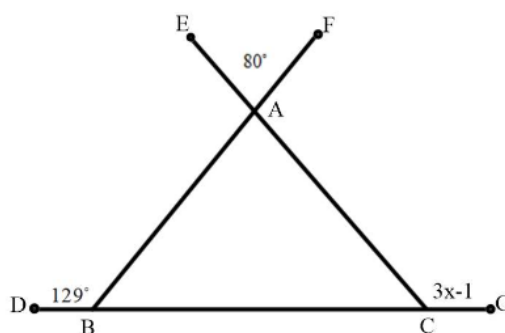


8.





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.