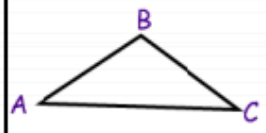
1.8 GN Parallel Lines & Triangles Name: _____

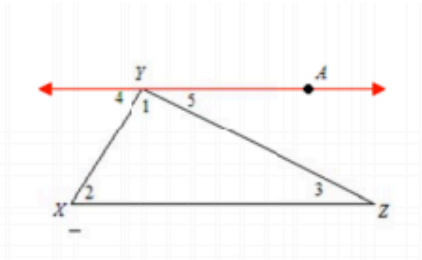
Postulate: Through a point not on a line, there is one and only one line parallel to the given line.

Triangle Sum Theorem:



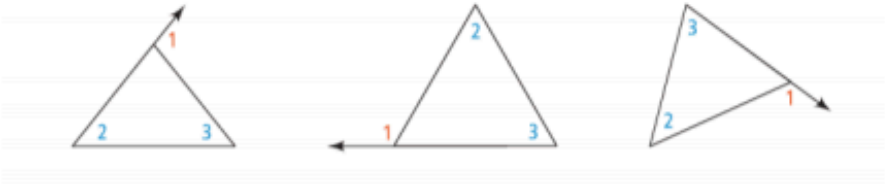
Ex: Find the missing angle.

Given: Triangle XYZ and line YA parallel to line XZ.
Prove: $m\angle 1 + m\angle 2 + m\angle 3 = 180°$



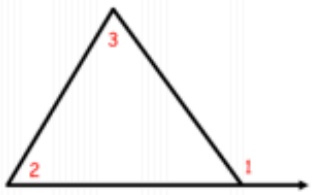
Exterior Angle of a Polygon:

Remote Interior Angles:

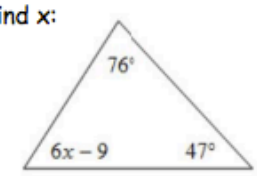


Triangle Exterior Angle Theorem: The measure of each exterior angle of a triangle equals the sum of its two remote interior angles.

Ex:



Find x:



Try this…Find the value of all the variables in the diagram.

Try these:

Summary:

_____

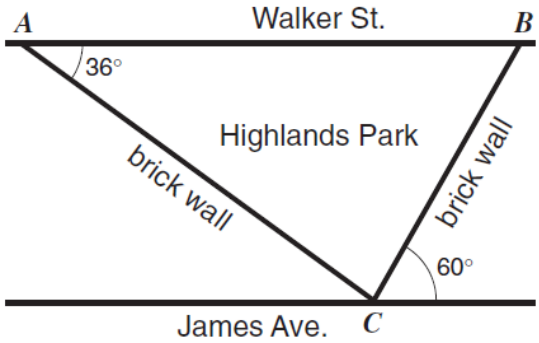
_____

_____

_____

1.8 Problem Set

Find all the missing angles in the picture below. Assume Walker St. and James Ave. are parallel.

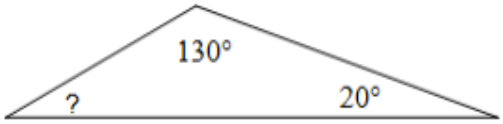


What is the sum of the interior angles of a the triangle ABC?

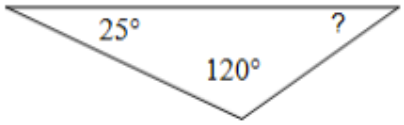
2.3 Problem Set

Find the measure of each angle indicated.

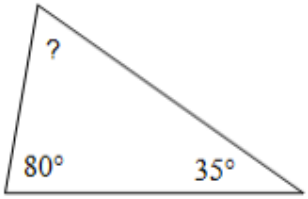
1)



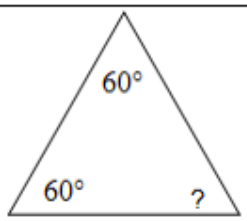
2)



3)

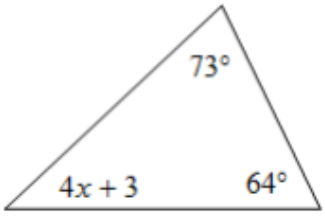


4)

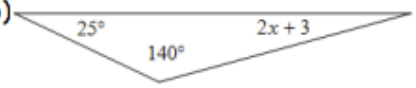


Directions: Solve for x.

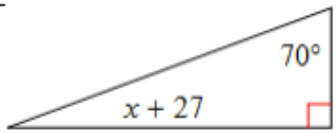
5)



6)

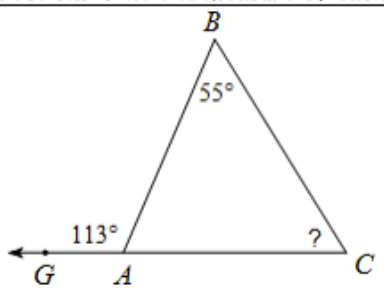


7)



Directions: Find the measure of each angle indicated.

8)



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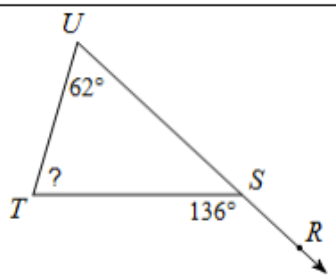

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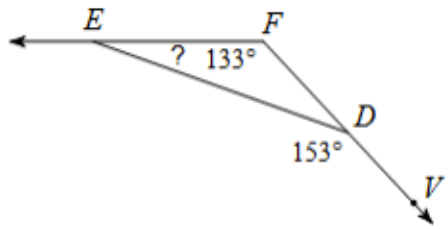

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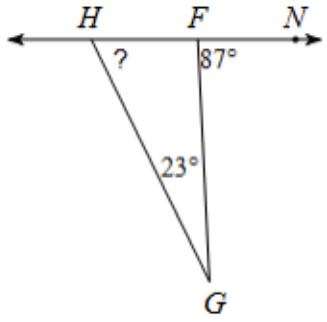
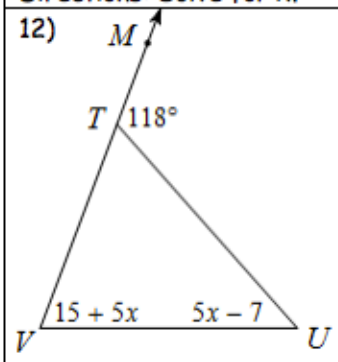
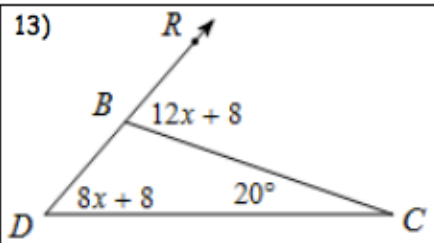


Directions: Solve for x.

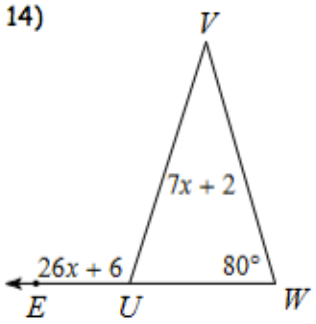
12)



13)

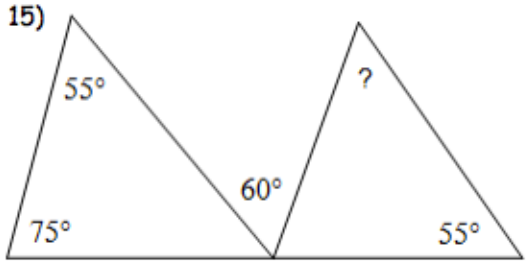


14)

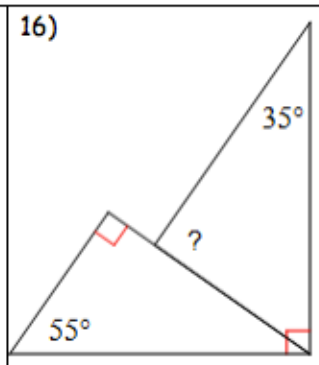


Directions:Find the measure of each angle.

15)

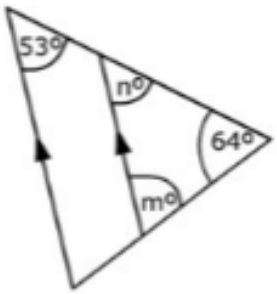


16)

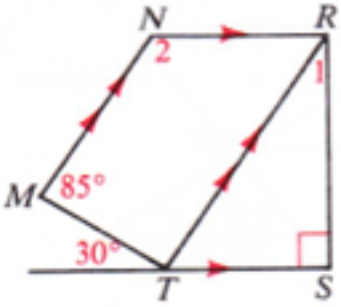


17) Find the measure of angle m and n.

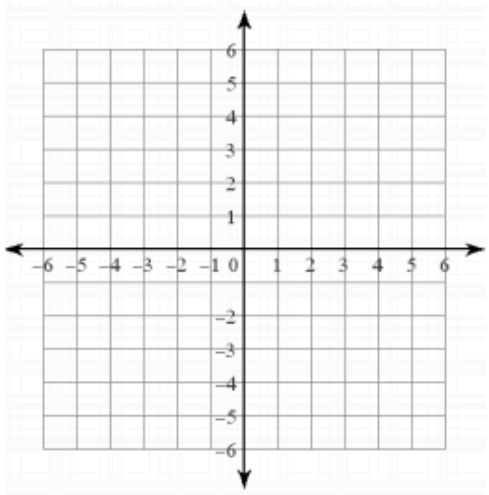
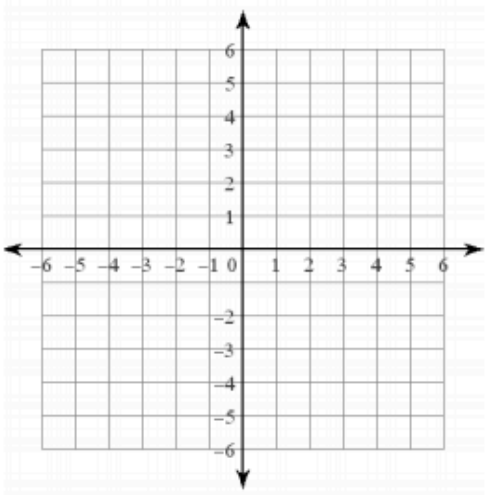
18)



Find the measures of $\angle 1$ and $\angle 2$.



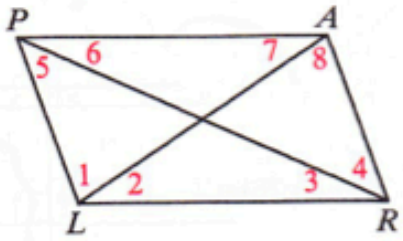
Algebra Review

Solve: $7y - 18 = -4$	Solve: 5h – 2 = 2h + 10	Multiply: $2x^2(3x^3 + 8x)$
Factor: $18x^2 - 45x$	Graph: $y = -x + 2$ 	Graph: $y = x$ 

2.3 Applications

1 In one triangle one of the angles is twice the measure of another and the third angle is three times as much as that angle. What are the measures of all three angles?	2. In another triangle one angle has $(x+5)^\circ$ and the other two angles are three times and eight times that angle. How many degrees are in each angle?

In each exercise some information is given. Use this information to name the segments that must be parallel.

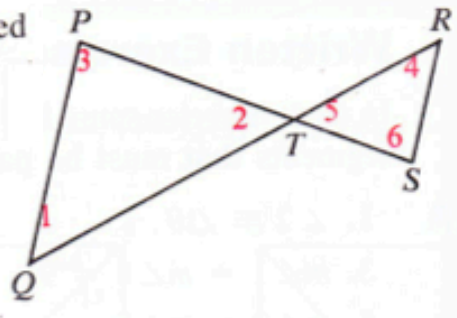


3. $m\angle 1 = m\angle 8$

4 $\angle 2 \cong \angle 7$

5. $m\angle APL + m\angle PAR = 180$

6. Given: $\angle 3 \cong \angle 6$
What can you prove about other angles? Be prepared to give your reasons in class, if asked.



7.

In each exercise some information is given. Use this information to name the segments that must be parallel. If there are no such segments, write *none*.

a) $\angle 2 \cong \angle 9$

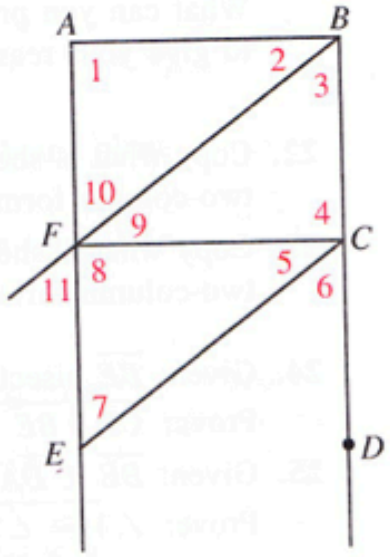
b) $\angle 6 \cong \angle 7$

c) $m\angle 1 = m\angle 8 = 90^\circ$

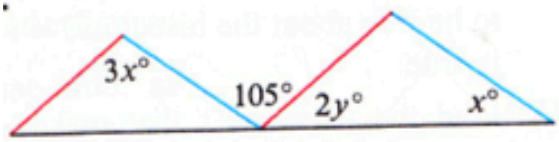
d) $\angle 3 \cong \angle 11$

e) $\angle 10 \cong \angle 11$

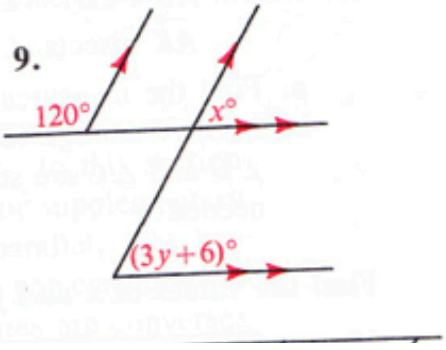
f) $\angle 7$ *and* $\angle 8$ are supplementary



8. **Find the values of x and y that make the red lines parallel and the blue lines parallel.**

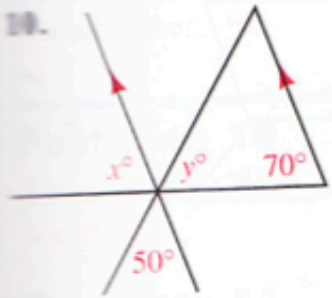


Find x and y.

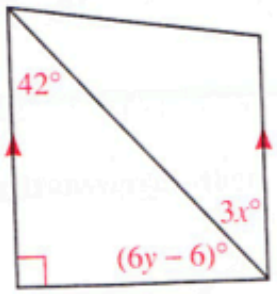


Find the values of x and y.

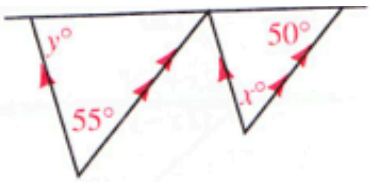
10.



11.

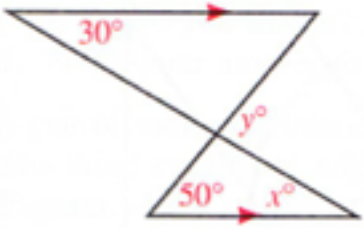


12.

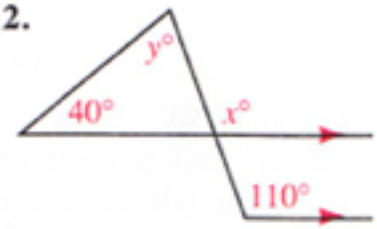


Find the values of x and y.

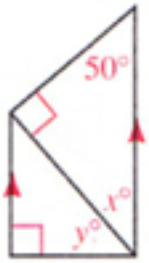
11.



12.

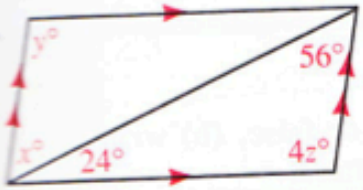


13.

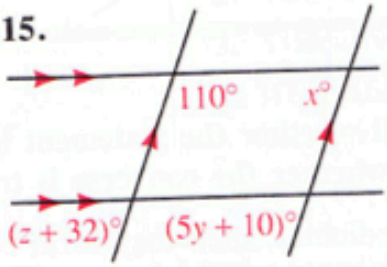


Find the values of x, y, and z.

14.



15.



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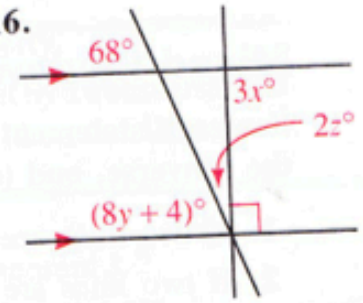

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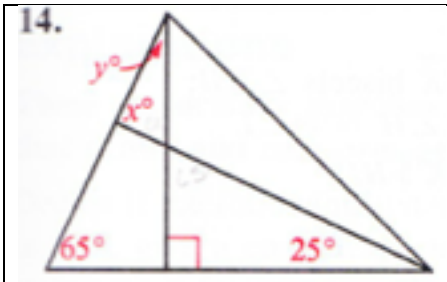

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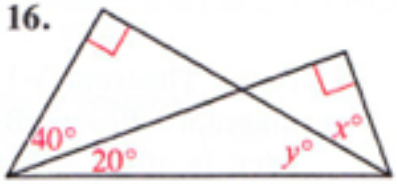
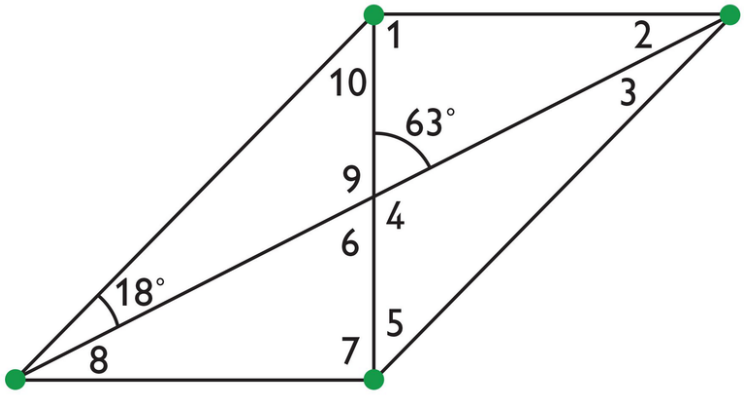


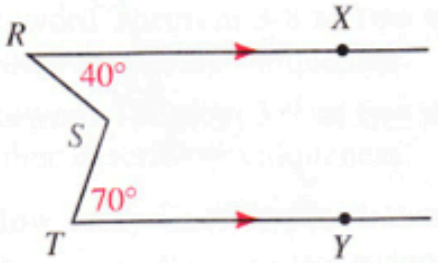
17. Assume the quadrilateral below is a parallelogram.



Challenge:

Find the measure of $\angle RST$. (*Hint*: Draw a line through S parallel to $\overline{RX}$ and $\overline{TY}$.)

32.



33.