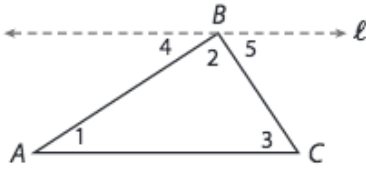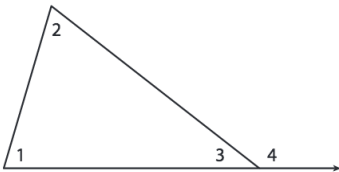# Review Sheet

Proofs We Have Discussed and will be on the quiz

Statements	Reasons
1. Draw line ℓ through point B parallel to $\overline{AC}$.	1. Parallel Postulate
2. m∠1 = m∠ __4__ and m∠3 = m∠ __5__	2. **Alternate Interior Angles Theorem**
3. m∠4 + m∠2 + m∠5 = 180°	3. Angle Addition Postulate and definition of straight angle
4. m∠ __1__ + m∠2 + m∠ __3__ = 180°	4. **Substitution Property of Equality**

By the __Triangle Sum Theorem__ , m∠1 + m∠2 + m∠3 = 180°.

Also, m∠3 + m∠4 = __180°__ because they are supplementary and make a straight angle.

By the Substitution Property of Equality, then, m∠1 + m∠2 + m∠3 = m∠ __3__ + m∠ __4__ .

Subtracting m∠3 from each side of this equation leaves __m∠1 + m∠2 = m∠4__ .

This means that the measure of an exterior angle of a triangle is equal to the sum of the measures of the remote interior angles.

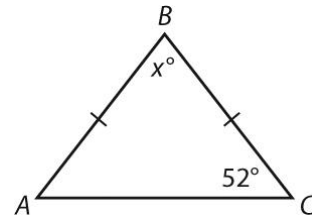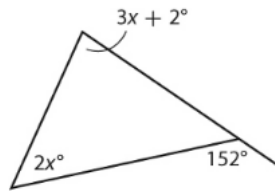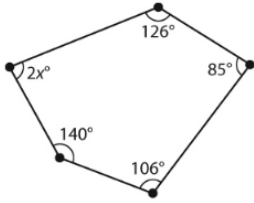**Critical Thinking** Prove ∠B ≅ ∠C, given point M is the midpoint of $\overline{BC}$.
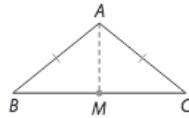
Statements	Reasons
1. **M is the midpoint of** $\overline{BC}$.	1. Given
2. $\overline{BM} \cong \overline{CM}$	2. Definition of midpoint
3. $\overline{AB} \cong \overline{AC}$	3. Given
4. $\overline{AM} \cong \overline{AM}$	4. Reflexive Property of Congruence
5. △AMB ≅ △AMC	5. SSS Triangle Congruence Theorem
6. ∠B ≅ ∠C	6. CPCTC

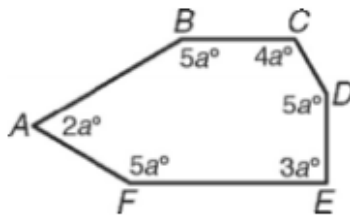1. How do you find the sum of the interior angles of a polygon?

2. How many sides does a polygon with an interior angle sum of 2700° have?

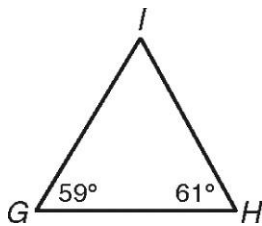3. What is the measure of an interior angle of a regular pentagon?
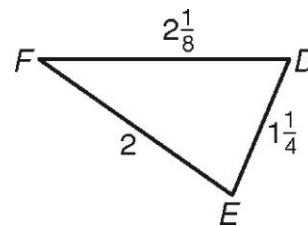
4. Find the value of x in each.

126°

2x°   85°

140°

106°

3x + 2°

2x°   152°

B

x°

52°

A   C

Find the value of a. →

B   C
5a°   4a°

A 2a°   5a° D

5a°   3a°
F   E

5. Name the sides from smallest to largest.

I

59°   61°
G   H

6. Name the angles in order from smallest to largest.

F $2\frac{1}{8}$ D

2                    $1\frac{1}{4}$

E

7. Can three segments with lengths 8, 15, and 6 make a triangle? Explain your answer.

8. Can a triangle be made from the side lengths 3, 3, and 6? Explain.

9. A triangle has sides 3 cm and 8 cm. What are the possible side lengths of the third side?

10. What is a midsegment of a triangle?

Find the value of n.

3n + 12   n + 14