

**Give a smile to someone as  
you  
pass them in the hall today!**

Today you will need:

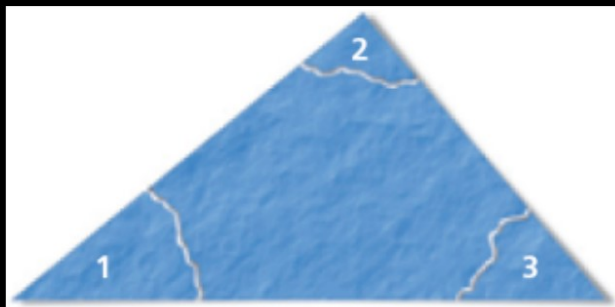
- Class Note Page ( I will pass out)
- graph spiral
- pencil

**Head your graph spiral for Problem 3.2**

## Warm-Up

In your graph spiral, answer the following question.

Suppose you tear the 3 corners off a triangle, and arrange them like this:

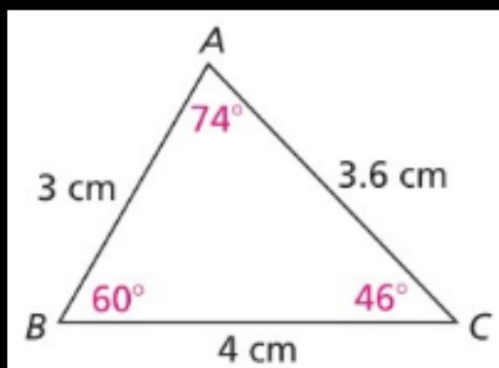


What conjecture (rule) can we say about the sum of all the angles in a triangle?

## 3.2 Design Challenge II

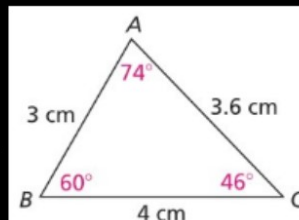
### Drawing Triangles

The drawing here shows a triangle with measures of all angles and sides.



Suppose you want to text a friend to give directions for drawing an exact copy of the figure. What is the shortest message to do the job? How do you know?

As a team, answer the questions on page 64.  
Record the answers in your graph paper.



- A** Which of these short messages give enough information to draw a triangle **congruent** to  $\triangle ABC$  above?

Can you make a different triangle, given the pieces of information?

1.  $\overline{BC} = 4 \text{ cm}$

$\angle B = 60^\circ$

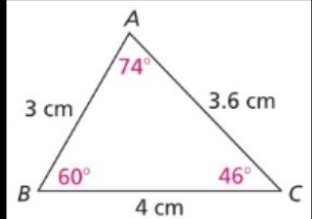
$\overline{AB} = 3 \text{ cm}$

2.  $\angle B = 60^\circ$

$\overline{BC} = 4 \text{ cm}$

$\angle C = 46^\circ$

- A** Which of these short messages give enough information to draw a triangle **congruent** to  $\triangle ABC$  above?



Can you make a different triangle, given the pieces of information?

3.  $\overline{AB} = 3 \text{ cm}$

$\overline{BC} = 4 \text{ cm}$

$\angle C = 46^\circ$

4.  $\angle B = 60^\circ$

$\angle A = 74^\circ$

$\angle C = 46^\circ$

# Class Work Answers:

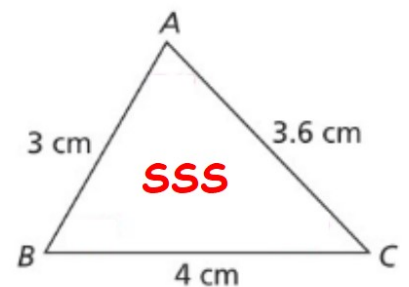
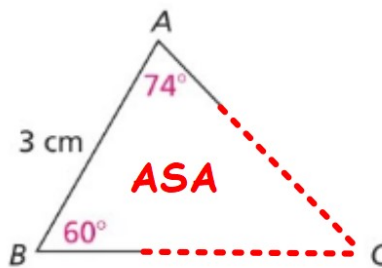
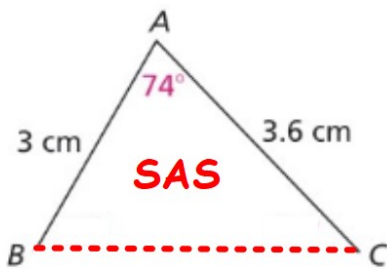
- A. 1. Makes a congruent triangle, given two sides and an angle between the sides (side-angle-side)
2. Makes a congruent triangle, given two angles and a side between the angles (angle-side-angle)
3. Makes different possible triangles, given two sides and an angle not between the sides (side-side-angle)
4. Makes different possible triangles, given three angles (angle-angle-angle)

## Combinations that Create UNIQUE Triangles

We can make a unique triangle if we have one of these:

- **Side-Angle-Side (SAS)** - Two sides of a triangle and the angle in between
- **Angle-Side-Angle (ASA)** - Two angles of a triangle and the side in between
- **Side-Side-Side (SSS)** - Three sides of a triangle

EX:

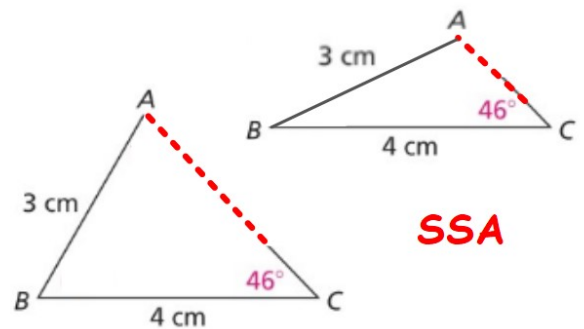
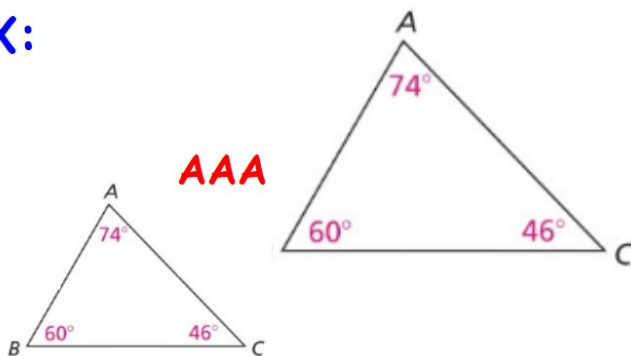


## Combinations that DON'T Create Unique Triangles

We can make more than one triangle if we have one of these:

- **Angle-Angle-Angle (AAA)** - Three angles of a triangle
- **Side-Side-Angle (SSA)** - Two sides of a triangle and the angle NOT between the sides

EX:





## Combinations that DON'T Create ANY Triangle

We can't make a triangle if we have one of these:

- The sum of the two shorter sides is less than or equal to the length of the longest side
- the sum of the angles in the triangle are less than OR more than  $180^\circ$

EX:

