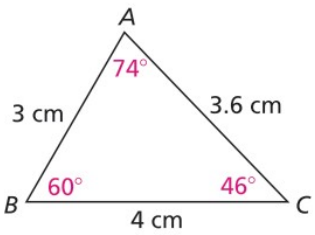
3.2 Design Challenge II
Drawing Triangles

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?

Problem 3.2

To find an answer to the challenge of describing triangles in only a few words, work through this Problem.

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

1. $\overline{BC} = 4$ cm
$\angle B = 60°$
$\overline{AB} = 3$ cm

2. $\angle B = 60°$
$\overline{BC} = 4$ cm
$\angle C = 46°$

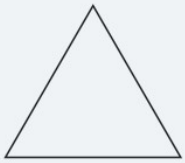
3. $\overline{AB} = 3$ cm
$\overline{BC} = 4$ cm
$\angle C = 46°$

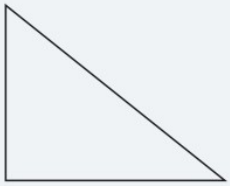
4. $\angle B = 60°$
$\angle A = 74°$
$\angle C = 46°$

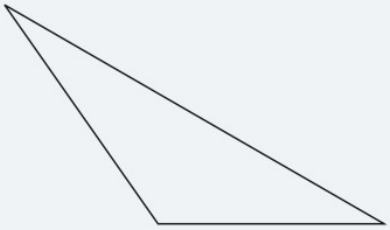
5. $\angle B = 60°$
$\angle C = 46°$
$\overline{AC} = 3.6$ cm

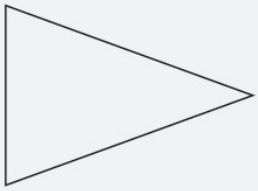
Problem 3.2 continued

B Write the shortest possible messages that tell how to draw triangles with the same size and shape as the ones below.

1. 

2. 

3. 

4. 

C What minimum information about a triangle allows you to draw exactly one triangle?

D Draw a triangle *ABC* in which angle *B* measures 90°. Then make a copy using the same three lengths of sides. Is your copy also a right triangle? Does it matter in what order you connect the sides?

ACE Homework starts on page 76.