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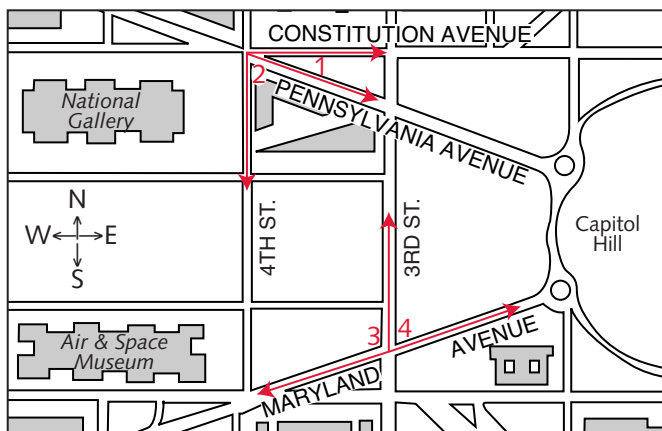


# The Streets of Washington, D.C.

Washington, D.C., is a beautiful, historic, and educational city. In the buildings of this great city, you can learn about our country's history and government. From its monuments you can learn about its leaders. The many museums can teach you about art and science. Even the streets of Washington provide a learning experience: they can teach you about angles and geometry.

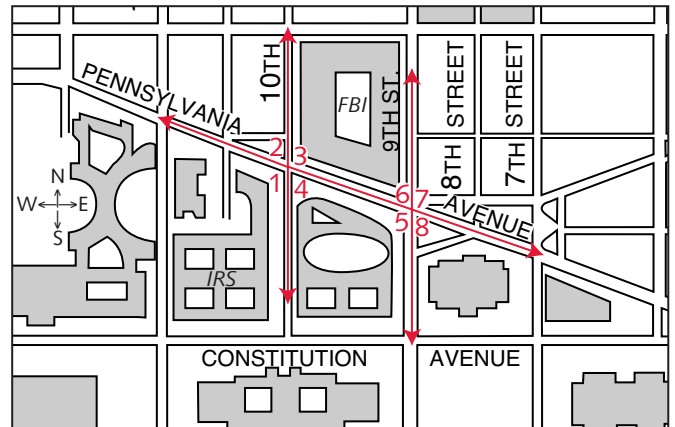
In 1791, George Washington selected the site for our nation's capital and hired Pierre L'Enfant to design it. This French engineer planned the city as a grid of intersecting lines. In general, lettered streets run east and west, numbered streets run north and south, and named streets run diagonally.

The intersecting streets form angles of every kind. The area shown below is around Capitol Hill. Angle 1, where Pennsylvania Avenue intersects Constitution Avenue, is an acute angle, measuring less than 90 degrees. Where Maryland Avenue and Third Street cross, angle 3 is obtuse, or larger than 90 degrees. Wherever perpendicular streets cross, right angles are found. Angles 1 and 2 together measure 90 degrees, also making a right angle.



When the sum of the measures of two angles is 90 degrees, the angles are *complementary*. Angles 1 and 2 are complementary, because together they measure 90 degrees. In this case, the angles are adjacent, meaning they share a side, but angles do not have to be adjacent to be complementary.

Two angles are *supplementary* if the sum of their measures is 180 degrees, or a straight angle. On the first map, angles 3 and 4 are supplementary. Again, these angles are adjacent, but supplementary angles do not have to be adjacent. In this case, the supplementary angles are an acute angle and an obtuse angle, but two right angles are also supplementary.



Now take a look at the streets a little farther to the west, around the Federal Bureau of Investigation building. Like many of the streets in Washington, 9th and 10th Streets are parallel, always the same distance apart. When another street, like Pennsylvania Avenue, crosses two parallel streets, two sets of four angles are created. The two sets are *corresponding angles*, meaning the angles in the same positions have the same measures. Corresponding angles are always congruent:

$$\begin{aligned} \angle 1 &\cong \angle 5 \\ \angle 2 &\cong \angle 6 \\ \angle 3 &\cong \angle 7 \\ \angle 4 &\cong \angle 8 \end{aligned}$$

Here's a useful fact about corresponding angles. In each set, there are many pairs of supplementary angles, such as 1 and 2, 2 and 3, 3 and 4, and 4 and 1. But because the corresponding set is congruent, pairs of angles between the sets are supplementary, too. So angles 1 and 6 are supplementary, just as 1 and 2 are.

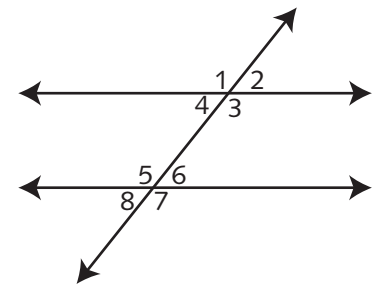
**Put an X in the square beside the best answer.**

1. An angle that measures less than 90 degrees is \_\_\_\_\_.  
 acute                       obtuse                       right                       straight
2. The main idea of paragraph 2 is that Washington, D.C., \_\_\_\_\_.  
 was designed by a French engineer                       was founded in 1791  
 was laid out as intersecting lines                       has lettered, numbered, and named streets
3. Two angles measure 60 degrees and 120 degrees. You can decide that these angles are \_\_\_\_\_.  
 adjacent                       complementary                       supplementary                       corresponding
4. To decide if two angles are complementary, what should you do *first*?  
 measure the angles                       identify the angles by name  
 add the measures                       find corresponding angles
5. Corresponding angles are formed by Pennsylvania Avenue intersecting 9th and 10th Streets because \_\_\_\_\_.  
 Pennsylvania Avenue runs diagonally  
 9th and 10th Streets are parallel to each other  
 9th and 10th Streets are perpendicular to each other  
 Pennsylvania Avenue is not a numbered street
6. In paragraph 6, the word congruent means \_\_\_\_\_.  
 sharing a side                       in the same position  
 intersecting                       the same size



**Write your answer to the following question on the lines below.**

Look at the figure at the right. Name a pair of complementary angles, a pair of supplementary angles, and a pair of corresponding angles. Explain how you know what each pair is.



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