

HW  
pg 38-39  
#8-12,  
16-22 even,  
26-40 even

# Geometry

**Chapter 1**  
**Section 1-5**

# Vocabulary

Adjacent Angles	Two angles with a common side, a common vertex and no common interior points
Vertical Angles	Two angles whose sides are opposite rays
Complementary Angles	Two angles whose measures add up to 90
Supplementary Angles	Two angles whose measures add up to 180
Angle Bisector	A ray, line, or segment that divides an angle into two smaller congruent angles

Has to share the middle ray  
two lines intersect=vertical angles  
No complement of an angle  $90^\circ$  or larger  
No supplement of straight angle  
Has to share common vertex/endpoint

# Identifying Angles and Angle Pairs

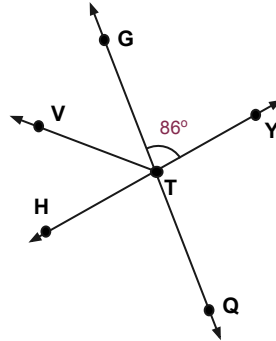
$\overleftrightarrow{HY}$  intersects  $\overleftrightarrow{GQ}$  at point T.  $\overrightarrow{TV}$  is a bisector of  $\angle HTG$ .  
 $\angle GTY$  measures  $86^\circ$ . Find the measure of the following angles:

$\angle HTY$        $\angle GTH$

$\angle VTH$        $\angle VTQ$

## Identify:

- A pair of supplementary angles
- Two pairs of adjacent acute angles
- Two pairs of congruent angles
- A pair of adjacent obtuse angles



HTY is straight angle so 180  
 $VTH + VTG = GTH$ ,  $2VTH = 94$ ,  $VTH = 47$   
 $VTQ = VTH + HTQ = VTH + GTY = 47 + 86 = 133$   
 HTG and GTY  
 HTV and VTG, VTG and GTY  
 HTV and VTG, HTQ and GTY

$$GTH = HTY - GTY = 180 - 86 = 94$$

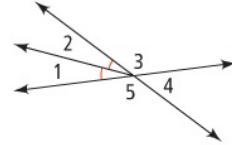
# Conclusions from a Diagram



## Problem 2 Making Conclusions From a Diagram

What can you conclude from the information in the diagram?

- $\angle 1 \cong \angle 2$  by the markings.
- $\angle 3$  and  $\angle 5$  are vertical angles.
- $\angle 1$  and  $\angle 2$ ,  $\angle 2$  and  $\angle 3$ ,  $\angle 3$  and  $\angle 4$ ,  $\angle 4$  and  $\angle 5$ , and  $\angle 5$  and  $\angle 1$  are adjacent angles.
- $\angle 3$  and  $\angle 4$ , and  $\angle 4$  and  $\angle 5$  are adjacent supplementary angles.  
So,  $m\angle 3 + m\angle 4 = 180$  and  $m\angle 4 + m\angle 5 = 180$  by the definition of supplementary angles.



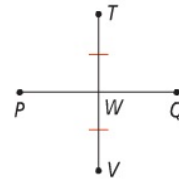
**Got It?** 2. Can you make each conclusion from the information in the diagram? Explain.

a.  $\overline{TW} \cong \overline{WV}$

b.  $\overline{PW} \cong \overline{WQ}$

c.  $\angle TWQ$  is a right angle.

d.  $\overline{TV}$  bisects  $\overline{PQ}$ .



- a)Yes
- b)No
- c)No
- d)No

# Assumptions from a Diagram

You *can* assume:

- angles are adjacent
- angles are vertical
- adjacent angles are supplementary

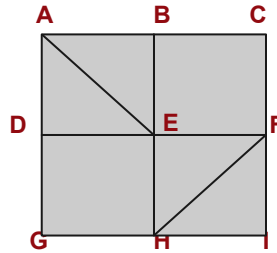
You *cannot* assume:

- an angle is a right angle
- angles are complementary
- angles or segments are congruent

# Questions

Can we answer the following questions about the diagram?

- How many right angles are there?
- How many vertical angles are there?
- Are  $\angle AEF$  and  $\angle DEA$  supplementary?
- Are  $\angle FHI$  and  $\angle FHE$  complementary?
- Are  $\angle BEF$  and  $\angle DEH$  vertical?



NO  
YES  
YES  
NO  
YES

# Homework

pages 38-39

#8-12, 16-22 even, 26-40 even