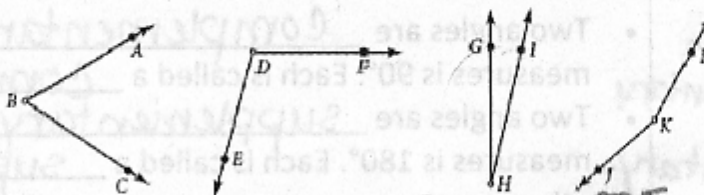


**GEOMETRY  
HONORS  
CLASS NOTES**

Name: Your Name  
 Section: 1.3 Period: 3 Date: 9/4/09  
 Key Question: How do you measure angles?

Questions/  
Main Ideas:

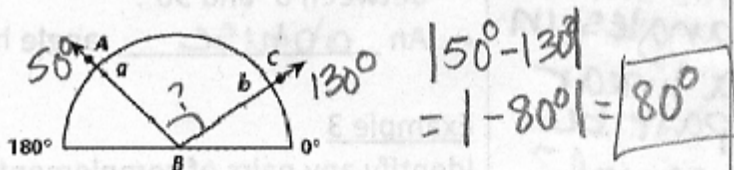
Warm-up:



1. Order the angles from largest to smallest.  $\angle JKL, \angle EDF, \angle ABC, \angle GHI$   
 $\angle K, \angle D, \angle B, \angle H$

Notes:

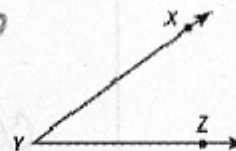
- A protractor is a type of geometry ruler used to find the measure of an angle.
- If the vertex of  $\angle ABC$  is placed at the center point of a protractor and  $\overline{BA}$  and  $\overline{BC}$  intersect the protractor at  $a$  and  $b$ , respectively, then the measure of  $\angle ABC$ , written  $m\angle ABC$ , is  $|a - b|$  or  $|b - a|$ .



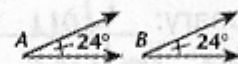
Level 1  
Describe how to use a protractor.

Example 1

Use a protractor to find the measure of  $\angle XYZ$ .  $36^\circ$



- The Angle Congruence Postulate: If two angles have the same measure, then they are congruent. If two angles are congruent, then they have the same measure.



- In the figure at the right,  $m\angle A = m\angle B$ , so  $\angle A$  and  $\angle B$  are congruent. This may be written  $\angle A \cong \angle B$ . The "tick marks" indicate that the angles are congruent.

Level 3

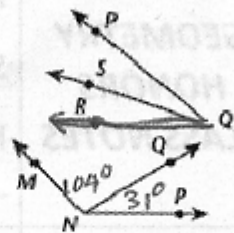
Speculate if there are two angles that are both complementary and supplementary.

Level 2

Analyse this question, Can the measures of two angles in a linear pair be equal?

• The Angle Addition Postulate:

If a point S is in the interior of  $\angle PQR$ , then  $m\angle PQS + m\angle SQR = m\angle PQR$ .



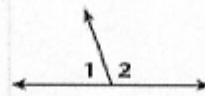
Example 2

In the figure,  $m\angle MNQ = 104^\circ$  and  $m\angle QNP = 31^\circ$ .

Find  $m\angle MNP$ .

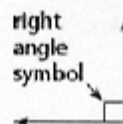
$104^\circ + 31^\circ = 135^\circ$

- Two angles are complementary if the sum of their measures is  $90^\circ$ . Each is called a complement of the other.
- Two angles are supplementary if the sum of their measures is  $180^\circ$ . Each is called a supplement of the other.
- If the endpoint of a ray is on a line so that two angles are formed, the angles are called a linear pair.
- In the figure,  $\angle 1$  and  $\angle 2$  form a linear pair. By the linear pair Property, the angles in a linear pair are supplementary.



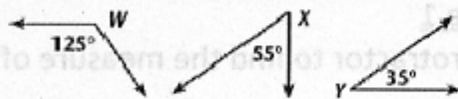
Angles may be classified according to their measures.

- A right angle has measure  $90^\circ$ .
- An acute angle has measure between  $0^\circ$  and  $90^\circ$ .
- An obtuse angle has measure between  $90^\circ$  and  $180^\circ$ .



Example 3

Identify any pairs of complementary angles or supplementary angles.



Comp.  $\angle X, \angle Y$

Supp.  $\angle W, \angle X$

Summary: You can measure angles by subtracting the values of the given angle and finding the absolute value of the difference. You can also use a protractor, place the fulcrum on the vertex and measure ray to ray.