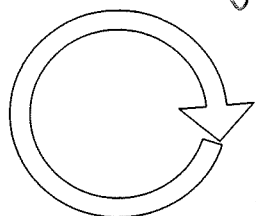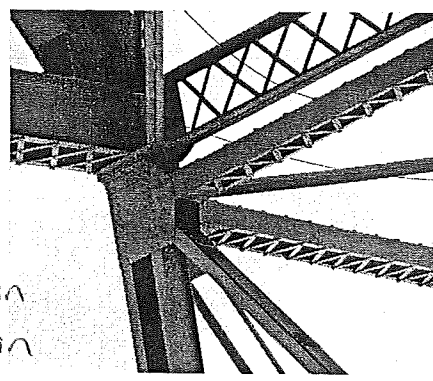## Geometry Notes: 1-4; *Angle Measure*

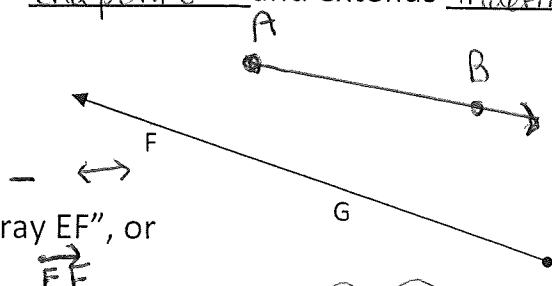Name __Key__   Date __9/22__

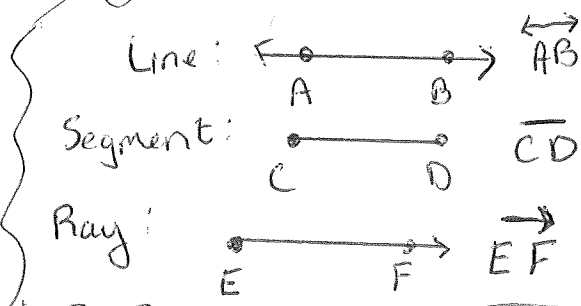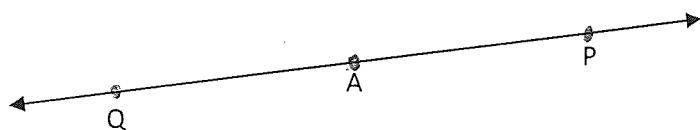1 **degree** = $\frac{1}{360}$ th of a turn of a circle.

Circle has 360° ⊙ Full spin

Semi circle has 180° ⌒ half spin

A line has a 180° angle

A B C

Ray: __A part of a line__. Has one __endpoint__ and extends __indefinetly__ __in one direction__ .

A
B

F

The ray at the *right* could be named "ray EF", or more commonly we use the symbol: __$\overrightarrow{EF}$__

G

E

Q A P

Line: $\overleftrightarrow{AB}$
A B

Segment: $\overline{CD}$
C D

Ray: $\overrightarrow{EF}$
E F

In the drawing directly above, __$\overrightarrow{AQ}$__ and __$\overrightarrow{AP}$__ are __opposite__ __rays__ . (***Opposite rays must be __Colinear rays__ .) on the same line

Angle: Formed by __two non colinear rays__ with common __endpoint__ .

side $\overrightarrow{BA}$

Vertex
B

A

B
5

C

side $\overrightarrow{BC}$
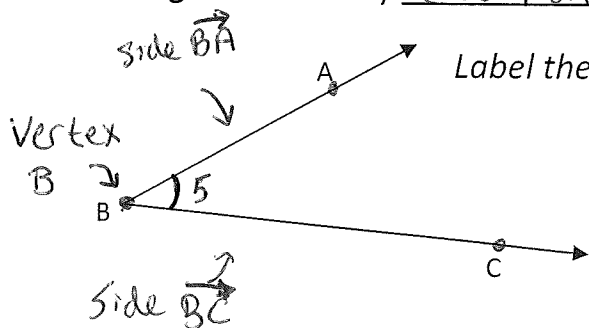
Label the parts of the angle on the left. This angle could be named:

∠B
∠ABC
∠CBA
∠5

There are __four__ angles in the diagram to the right.
Could you name either of them ∠E ? Why or why not?

D   G

E

F   H

C •   • B

A

E

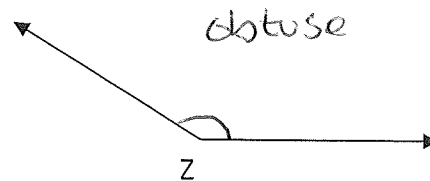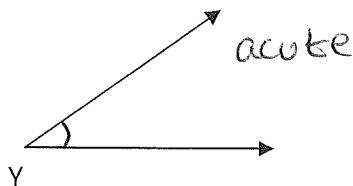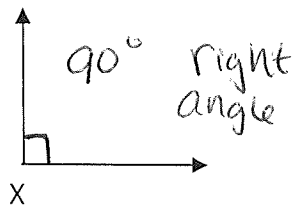F •   D
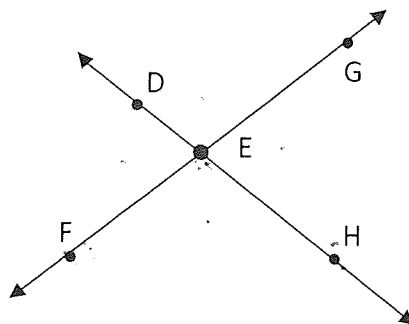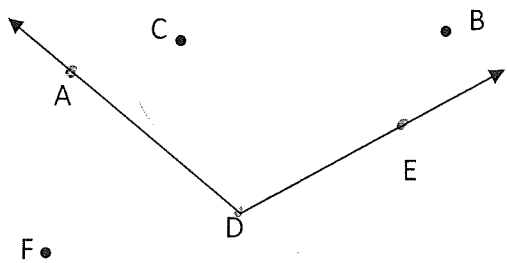
Points A, D, and E are *on* __the angle__.

Which points(s) are in the *interior* of ∠D? __Points C and B__

Which points(s) are on the *exterior* of ∠D? __Point F__

(***See Page 30 example 1 for more practice!)

A geometric tool used to measure angles is a __Protractor__. Measure the following angles: *Remember to use the scale that begins with a zero at the angle's terminal side!!!*

90° right angle

X

acute

Y

obtuse

Z

An angle measuring *greater than* 90° is a(n) __obtuse__ angle, as in ∠__Z__ above.

An angle measuring *less than* 90° is a(n) __acute__ angle, as in ∠__Y__ above.

An angle measuring *exactly* 90° is a(n) __right__ angle, as in ∠__X__ above. Mark this angle with the symbol that means the angle measure = 90° (that the angle is a right angle).

__Congruent~~Verticle~~__ ∠'s have the same __Measure__.

Write a congruency statement for the numbered angles, *and* mark them congruent on the diagram.
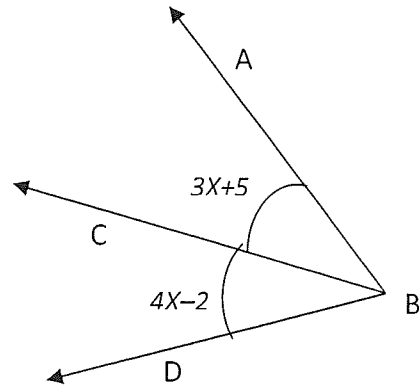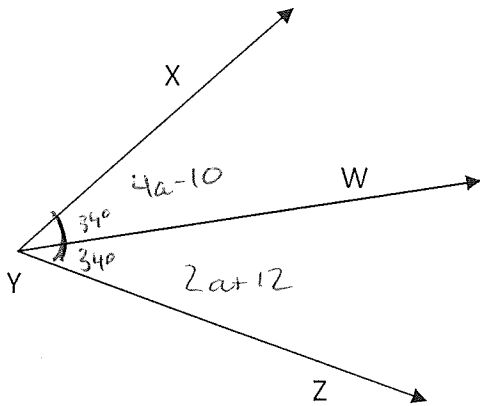
1   2
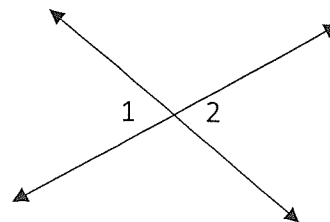
__∠1__ ≅ __∠2__

Example:

1. Find $m \angle$ CBD.

$\angle ABC \cong CBD$ $\angle CBD = 4x - 2$

$3x + 5 = 4x - 2$ $\angle CBD = 4(7) - 2$

$\underline{-3x \qquad -3x}$ $\angle CBD = 28 - 2$

$5 = x - 2$ $\angle CBD = 26°$

$\underline{+2 \qquad +2}$

$7 = x$

Angle Bisector: A ___ray___ that divides an angle into ___two___ ___Congruent___ angles.

Example:

If $\overrightarrow{YW}$ bisects $\angle$ XYZ, $m \angle$ XYW= 4a−10, $m \angle$ WYZ= 2a+12 , then find "a" and $m \angle$ XYZ.

$4a - 10 = 2a + 12$ $4a - 10$

$2a - 10 = 12$ $4(11) - 10$

$2a = 22$ $44 - 10$

$a = 11$ $34 + 34$

$\qquad\qquad\qquad\qquad 68°$