Name: Key
UNIT 1A

Date: _____
LESSON 5

AIM: HOW DO WE COPY AN ANGLE?

Do Now:

1. What does it mean for two lines to be parallel? What is the difference between parallel and perpendicular lines? Draw a picture to support your argument.

Parallel - lines never touch ⟺

Perpendicular - lines intersect & form 90° ∠'s ⊥

2. What does the word "congruence" mean?

For angles or segments to be of equal measure

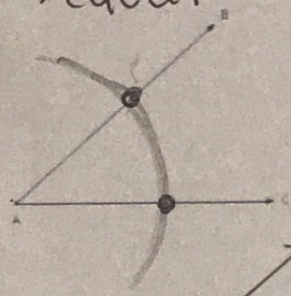
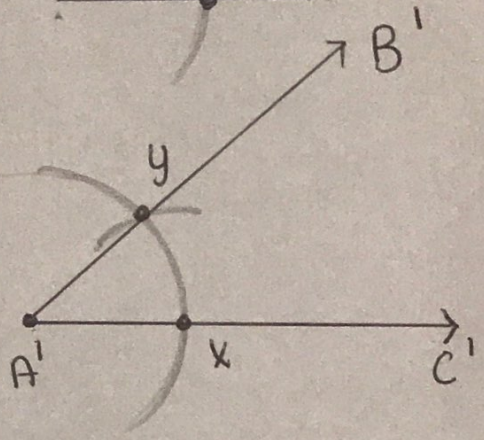
using the word "equal" is specifically for angles or segments with numeric values

∠ABC = ∠DEF

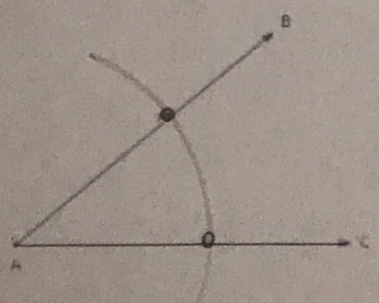
∠ABC ≅ ∠DEF

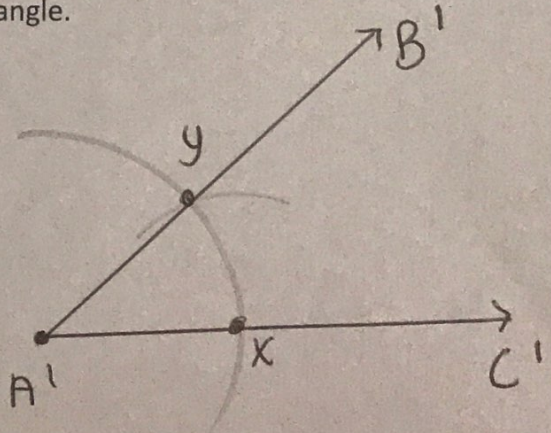
congruent

HOW TO COPY AN ANGLE

STEPS	CONSTRUCTION
1. Draw point A' underneath the angle and draw ray A'C'	
2. Extend your compass to any width and draw an arc that hits both ray AB and AC	
3. Without changing the width, move your pointy end down to A' and draw the same arc. Mark where it intersects the ray A'C' as X	
4. On the original angle, measure the distance between the two intersection points from the arc you drew	
5. Without changing the width, place your pointy end on X and draw an arc, such that the two arcs intersect. Label the point of intersection Y	
6. Connect ray A'Y and you're done!	

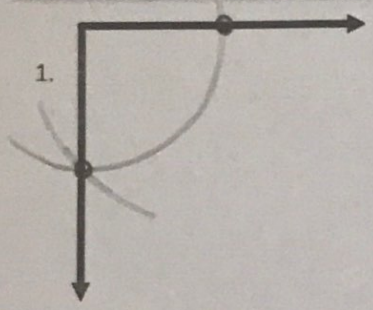
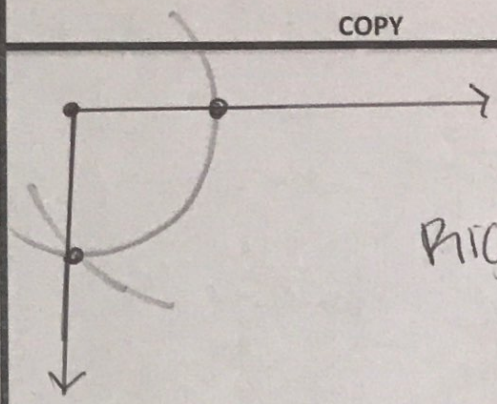
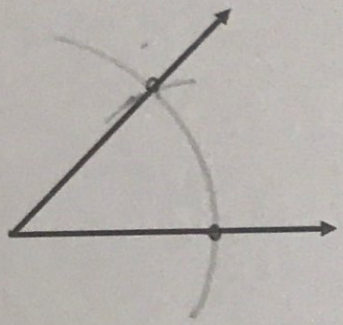
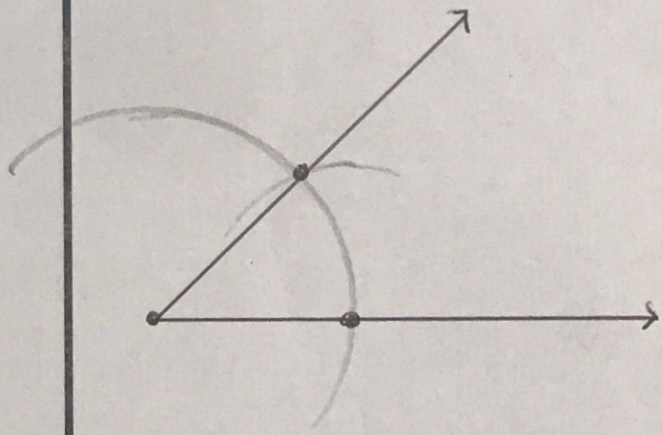
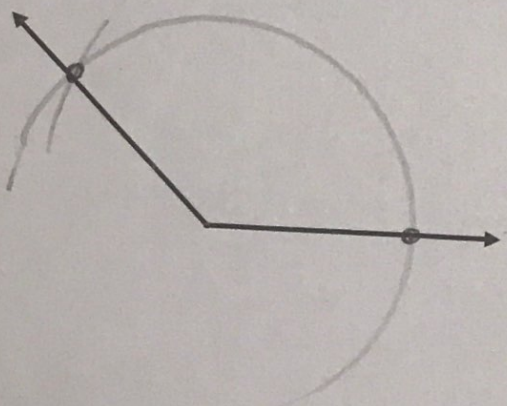
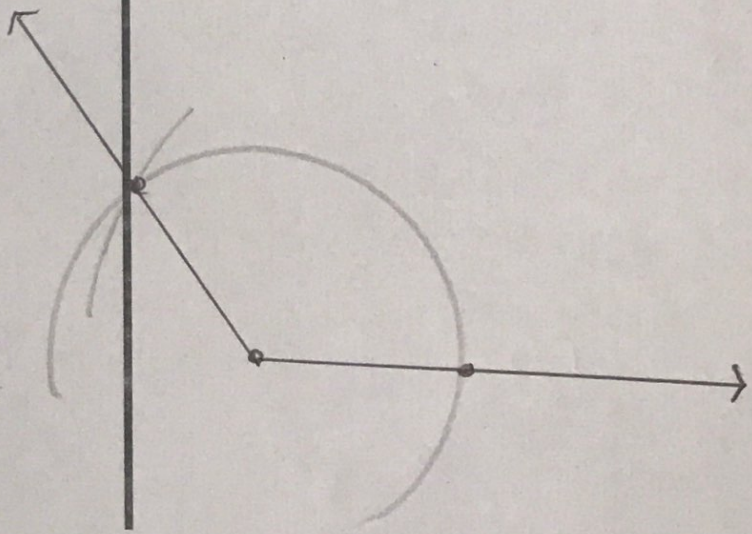
PRACTICE: Construct congruent angles for the following angle.



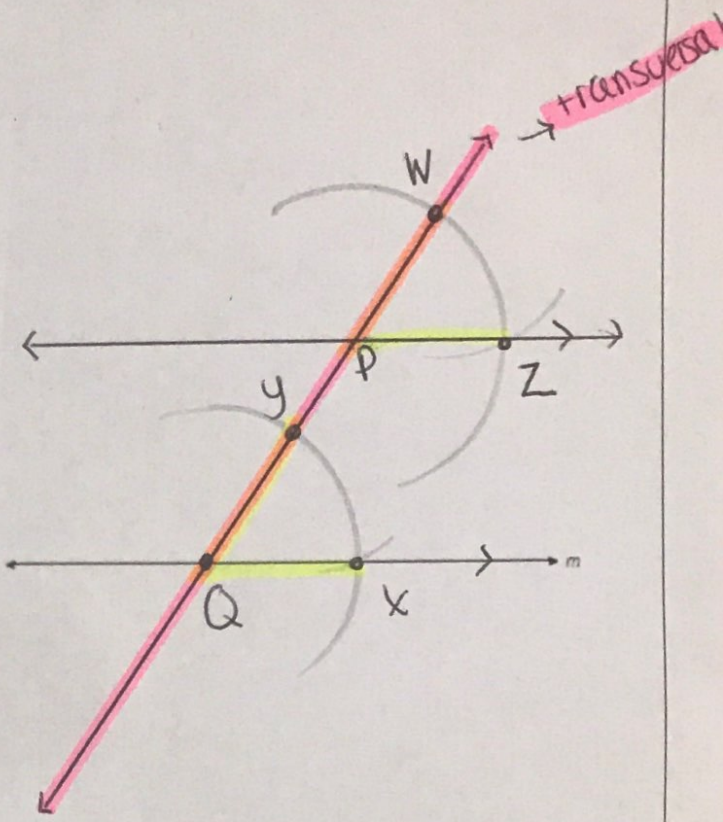


PRACTICE: Using your compass and a straightedge:

1. Copy the angle
2. Classify the angle (right, acute, obtuse)

ORIGINAL	COPY
1. 	 Right ∠
2. 	
3. 	

HOW TO CONSTRUCT PARALLEL LINES

STEPS	C ONSTRUCTION
1. Draw a **transversal*** *(fancy way we say 'line' when we are discussing parallel lines specifically)* through P and across the line *m* at an angle, forming the point Q where it intersects the line *m*. The exact angle is not important. 2. With the compasses' width set to about half the distance between P and Q (the exact width is not important), place the point on Q, and draw an arc across both lines. Label intersections X and Y. 3. Without adjusting the compasses' width, move the compasses to P and draw the same arc as the one in step 2. Where the arc intercepts the transversal, label the point W. 4. Set compasses' width to the distance between X and Y. 5. Without adjusting the compasses' width, place the compass on W and create intercepting arc forming point Z. 6. Draw a straight line through points P and Z.	

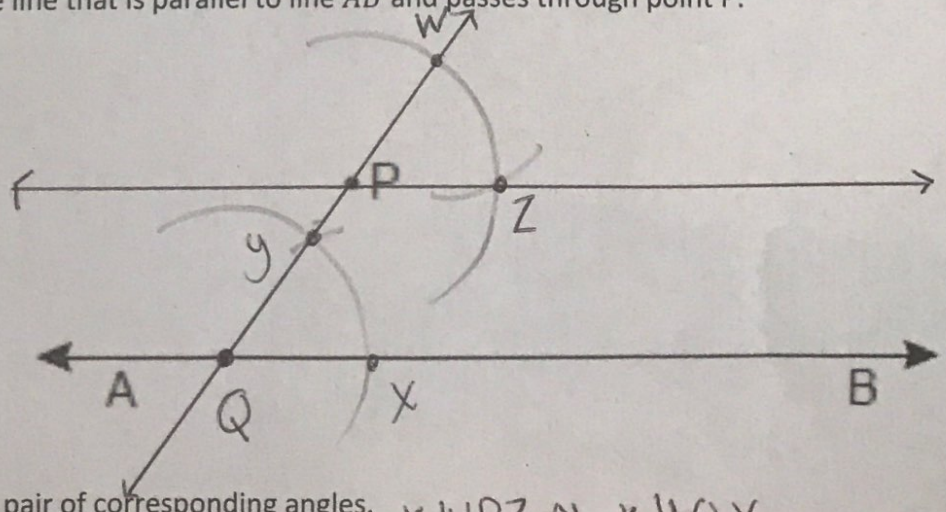
CONCLUSIONS:

What construction is this similar to? copying an ∠

What can you conclude about $\measuredangle XQY$ and $\measuredangle WPZ$? they are ≅!

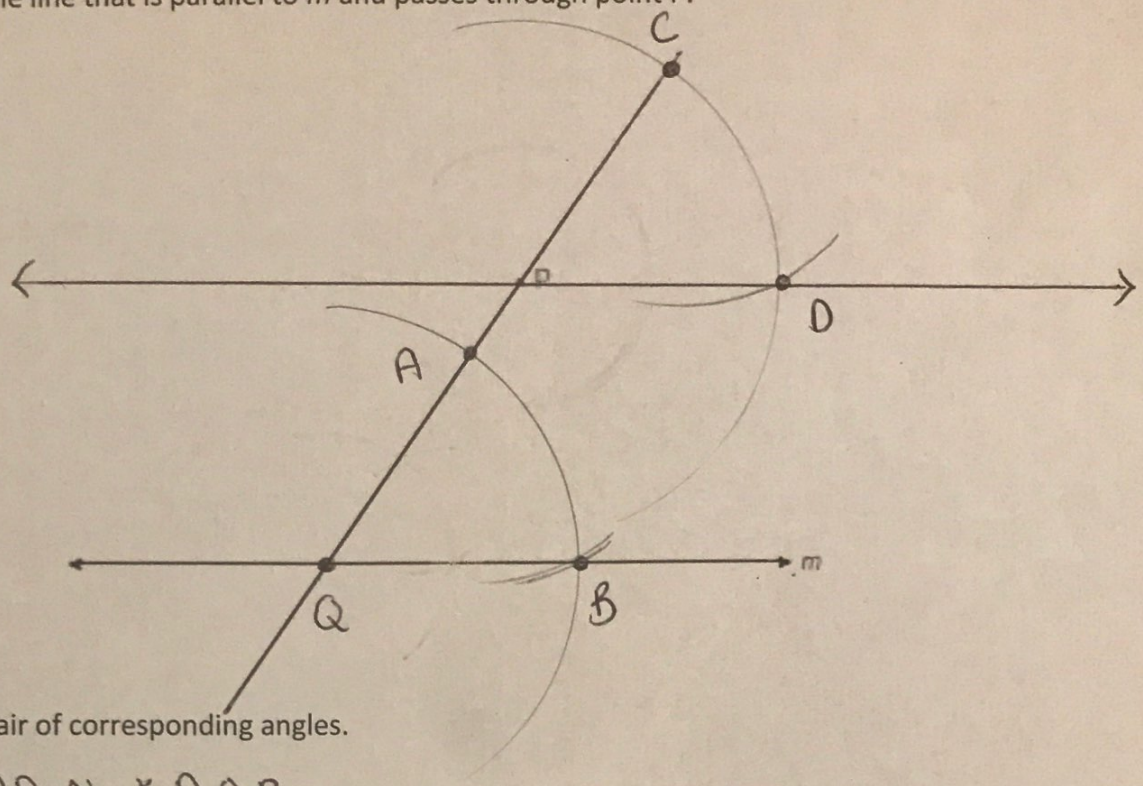
We call these corresponding angles. They are formed when two parallel lines are cut by a transveral. Corresponding angles are always congruent!

1. A) Construct the line that is parallel to line $\overline{AB}$ and passes through point P.



B) Identify a pair of corresponding angles. ∠WPZ ≅ ∠YQX

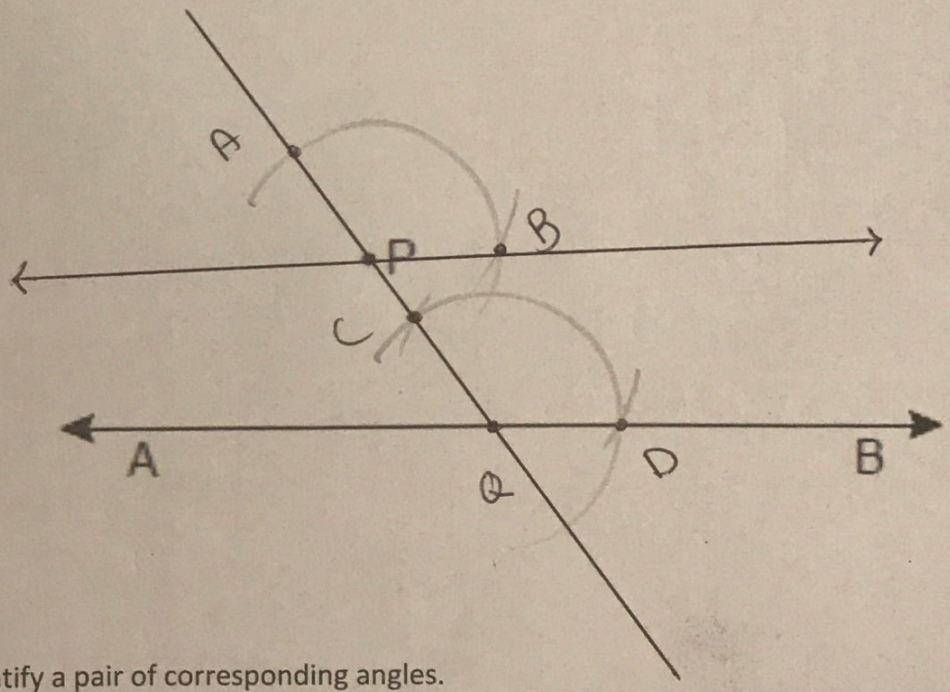
2. A) Construct the line that is parallel to *m* and passes through point P.



B) Identify a pair of corresponding angles.

$\angle CPD \cong \angle AQB$

3. A) Construct the line that is parallel to AB and passes through point P.



B) Identify a pair of corresponding angles.

$\angle APB \cong \angle CQD$