Name: Key

Date: _____

UNIT 1A

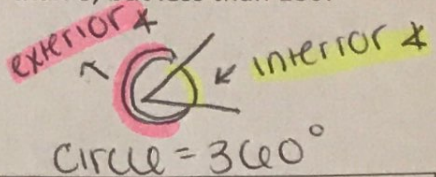
LESSON 4

AIM: HOW DO WE BISECT AN ANGLE?

Do Now: Directions: Fill in the matching.

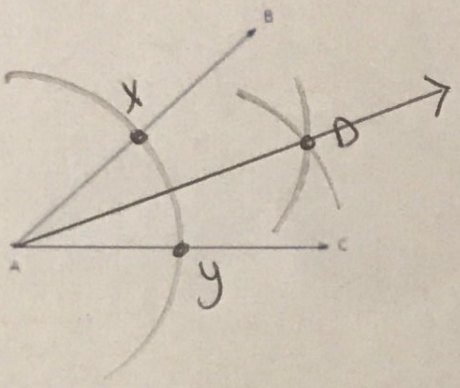
~~A.~~ Angle
~~B.~~ Interior Angle
~~C.~~ Straight angle
~~D.~~ An angle bisector
~~E.~~ Exterior Angle (Reflex Angle)

1) D Divides an angle into two congruent angles.
2) E An angle whose measure is greater than 180, but less than 360.
3) A The union of two rays with a common endpoint.
4) B An angle whose measure is greater than 0, but less than 180.
5) C is a line and measures 180°



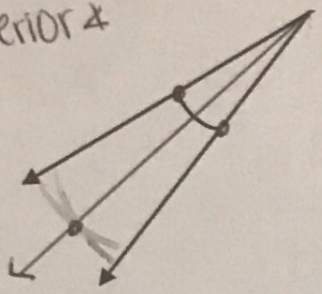
Circle = 360°

HOW TO BISECT AN ANGLE

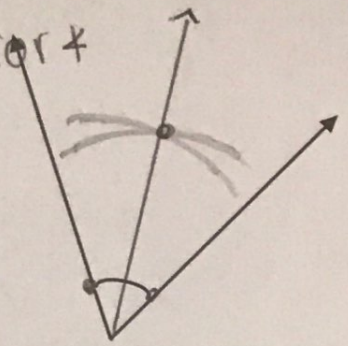
STEPS	CONSTRUCTION	CONCLUSIONS
Start with an angle BAC that we will copy. 1. Place the compasses' point on the angle's vertex A 2. Adjust the compasses to a medium wide setting. **The exact width is not important.** 3. Without changing the compasses' width, draw an arc across each leg of the angle. Label the points of intersection X and Y. 4. You may adjust the compasses width, if necessary. Place the compasses on X draw an arc in the interior of the angle. 5. Without changing the compasses setting repeat for Y so that the two arcs cross. 6. Using a straightedge or ruler, draw a line from the vertex to the point where the arcs cross. ↓ label D		$\angle BAD \cong \angle CAD$ $\angle BAD \cong \frac{1}{2}\angle BAC$ $\angle CAD \cong \frac{1}{2}\angle CAB$ $2\angle BAD \cong \angle BAC$ $2\angle CAD \cong \angle CAB$

PRACTICE: Bisect each angle below. Leave all construction marks.

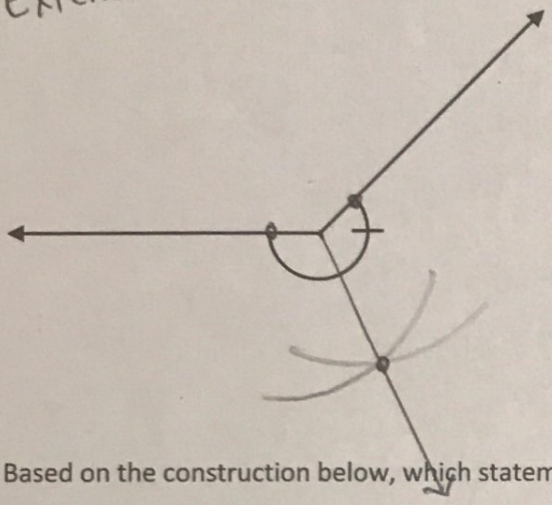
1. interior ∡



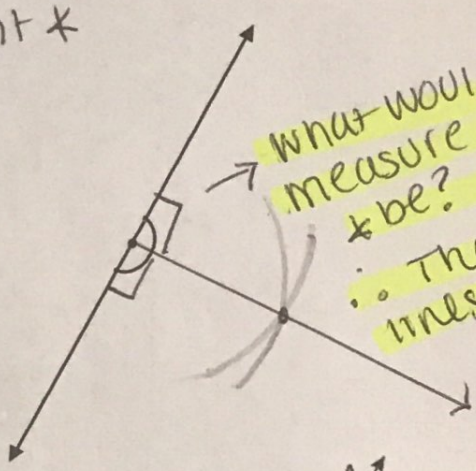
2. interior ∡



3. Exterior ∡



4. straight ∡



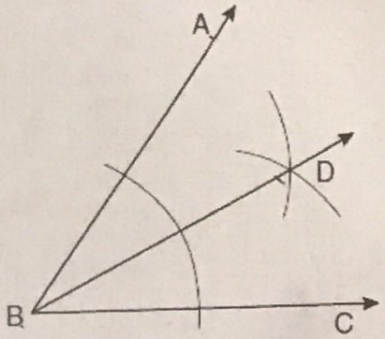
5. Based on the construction below, which statement must be **true**?

1) $m\angle ABD = \frac{1}{2} m\angle CBD$ ✗ CBA

2) $m\angle ABD = m\angle CBD$

3) $m\angle ABD = m\angle ABC$ ✗ CBD

4) $m\angle CBD = \frac{1}{2} m\angle ABD$ ✗ ABC



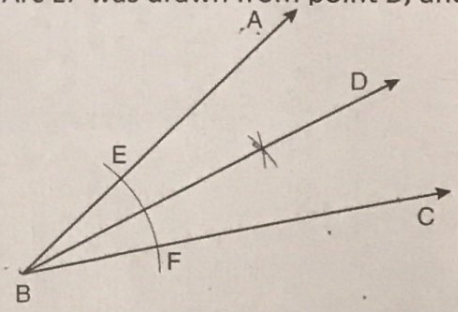
6. A straightedge and compass were used to create the construction below. Arc *EF* was drawn from point *B*, and arcs with equal radii were drawn from *E* and *F*. Which statement is ***false***?

1) $m\angle ABD = m\angle DBC$ ✓

2) $\frac{1}{2}(m\angle ABC) = m\angle ABD$ ✓

3) $2(m\angle DBC) = m\angle ABC$ ✓

4) $2(m\angle ABC) = m\angle CBD$



7. Using a compass and straightedge, construct the bisector of $\angle CBA$. [Leave all construction marks.]