8.6 Honors Notes – Constructions

You will need the following tools
-Compass   -Straightedge (no markings)   -Pencil

Drawing Circles, become familiar with the compass
-Anchor the compass at the center of your circle. Spin the compass to drag the pencil around until it connects to the starting point

Practice: Draw circles using your compass with centers at the given points. Make your circles different sizes.
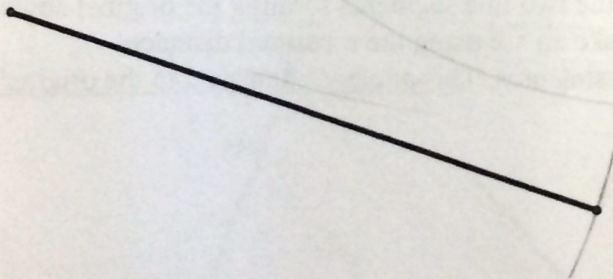
•A

•C
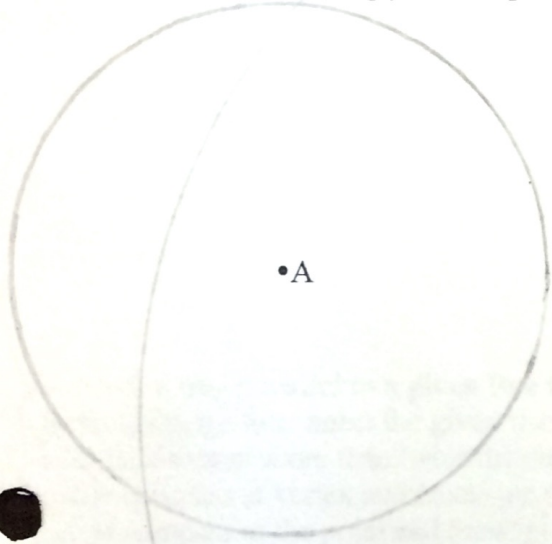
•B

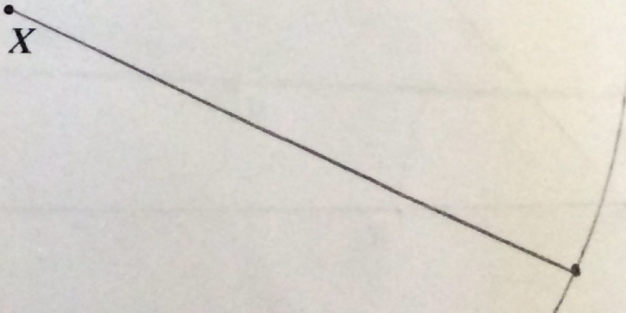**Copying a line segment WITHOUT measuring using a ruler**
-Anchor your compass at one end of the line segment. Stretch your compass until the pencil reaches the other end.
HOLD THIS DISTANCE
-Place the anchor of the compass at the point you will be using as an endpoint. Make an arc with the pencil. Use the straightedge to connect your point with a point on the arc. This line segment is the exact same length as the original

Practice: Copy each line segment at the point given below.

X

Y

Duplicating a line segment length (n times long as original)

-Anchor your compass at one end of the line segment. Stretch your compass until the pencil reaches the other end.
-Spin and drag your compass until you have made an arc in the direction you desire.
-Use straightedge to connect endpoint to a point on your arc. Mark the point. Use the new point as the anchor for the next arc. Draw line segment connecting existing segment to the new one.
-Repeat as many times as needed to get a segment with length equal to the needed multiple of the original.

Example: Create a new line segment with length 4x that of given line

Practice: Create a new line segment with length 3x that of the given line

Copying an angle.

-Draw a new line segment where you plan to make your new angle.
-Anchor the compass at the vertex of the angle. Create an arc that crosses over both lines of the angle.
-Using this distance, anchor your compass at one end of your line segment and create the same arc
-Use compass to measure the distance between the arc crossing the two line segments forming the original angle
-Anchor your compass at the arc crossing your line segment. Make an arc using the measured distance.
-Use straightedge to connect the end of your segment to the crossing arcs. This angle is congruent to the original
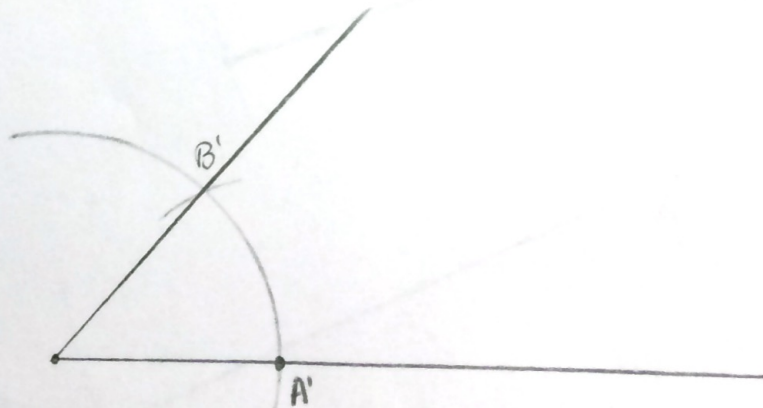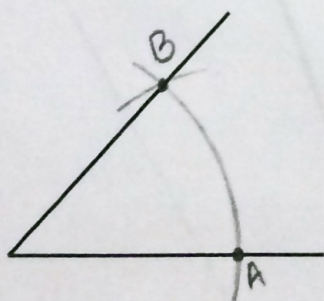
Practice:

Construct an angle congruent to the given angles
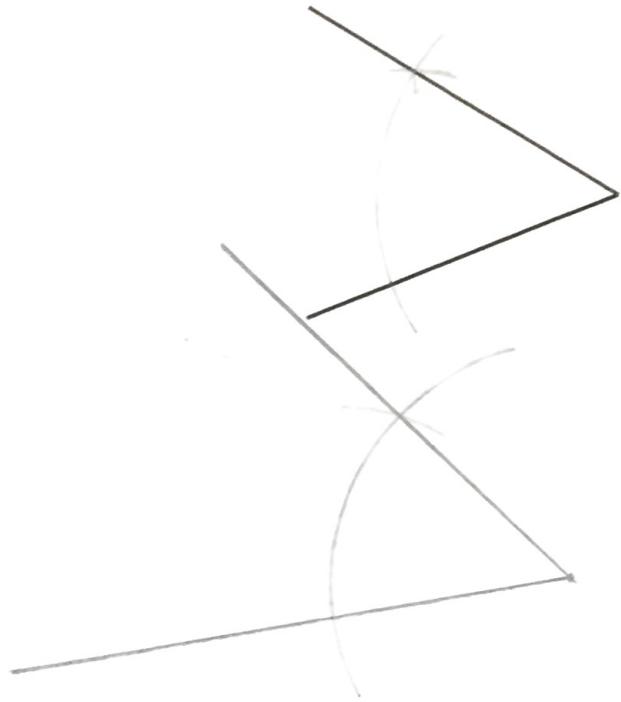
Construct a line parallel to a given line through a point not on the line

-Use straightedge to connect the given line through a point not on the line, forming angle. (Angle should not be 90°)
Line should extend more than twice the distance between the given line and the point
-Anchor compass at vertex and create arc that crosses both lines closer to the vertex than the point. Label B and C
-Anchor compass at the point and draw an extended arc of the same distance that crosses your slanted line at D
-Use compass to measure distance between the arc crossings B and C.
-Anchor compass at D, and use this distance to make a crossing with extended arc. Label as E
-Draw a line through the point and point E. This line is parallel to the original.
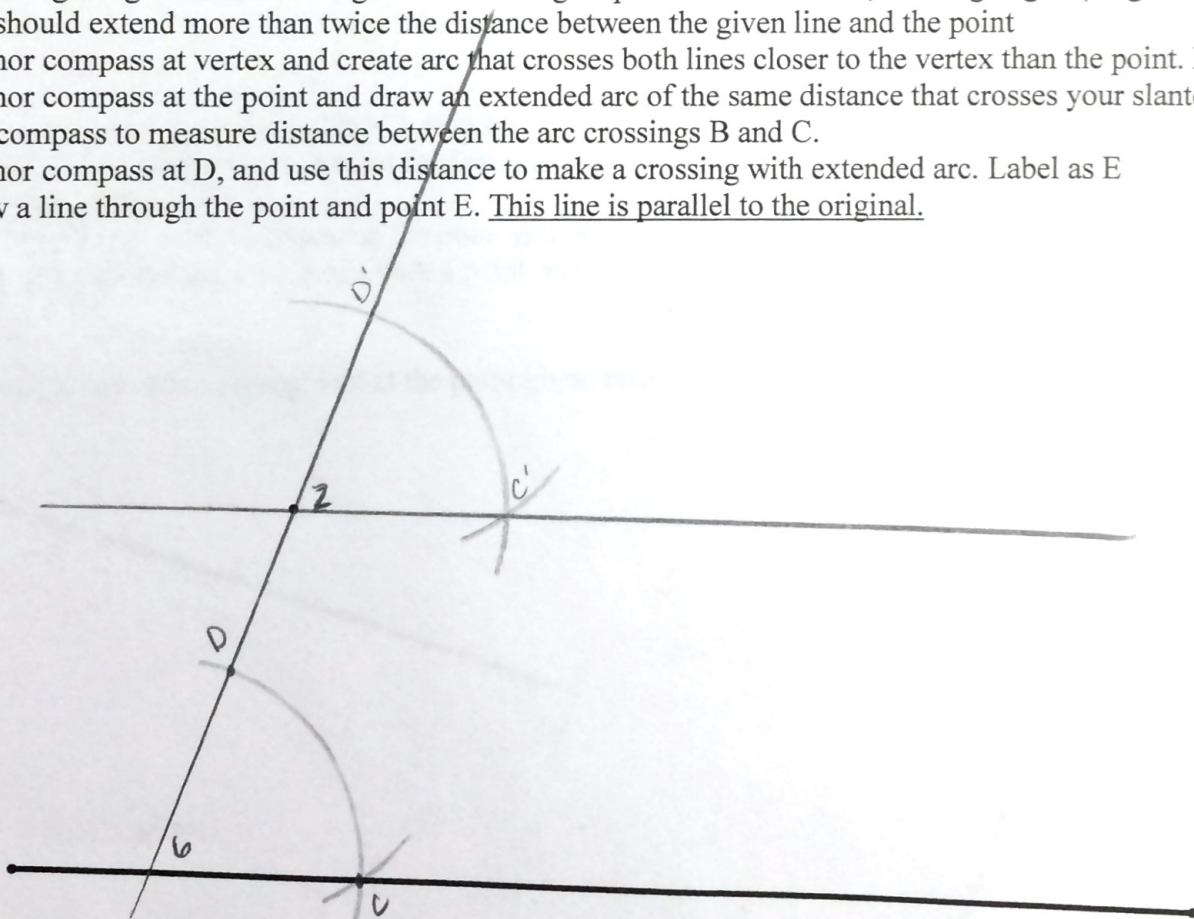
Practice: Draw a line parallel to the given one through point