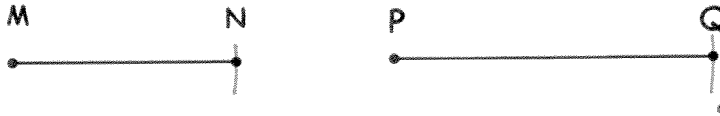# Segment, Angle, & Line Constructions

Master E.

Construct Congruent Segments (Copy a Segment) – p. 17

1-4: Measure $\overline{MN}$ and $\overline{PQ}$ (in cm) and fill in the blanks. Use your compass along with your ruler to make a line and construct each described segment. Measure your results and write them in the blanks.

M   N   P   Q

1. MN = __3cm__

2. PQ = __4.3 cm__

3. RS = MN

4. AB = MN + PQ

3. RS = __3cm__

4. AB = __7.3cm__

Construct a Segment Bisector (Bisect a Segment) – p. 30

5-6: Measure $\overline{AB}$ (in cm) and fill in blank. Using your compass and ruler, construct the bisector of $\overline{AB}$ on top of the segment above. Name the midpoint X. Measure your result and write the measure $\overline{AX}$ in the blank.
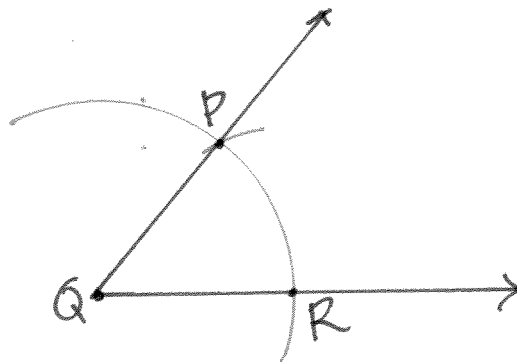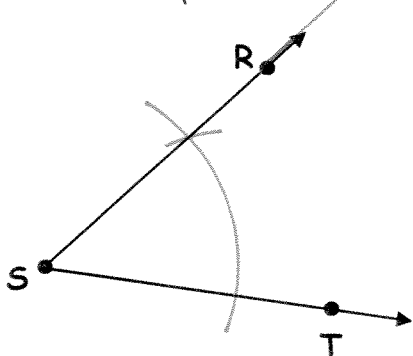
5. AB = __5.6 cm__

6. AX = __2.8 cm__

A   X   B

7. What do you observe about the measure of segments AB & AX? $AX = \frac{1}{2}AB$
or $2AX = AB$

Construct Congruent Angles (Copy an Angle) – p. 39

8-9: Measure ∠RST with your protractor and fill in the blank. Using your compass and ruler, construct ∠PQR ≅ ∠RST. Measure your result and write the measure of ∠PQR in the blank.

8. m∠RST = __52°__
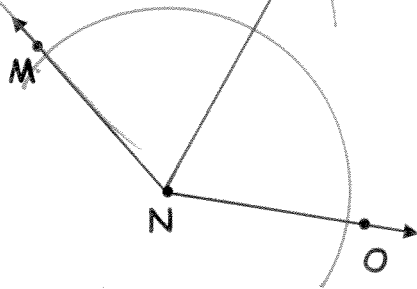
9. m∠PQR = __52°__

10. How is your constructed angle related to the original angle?
It is the same measure

Construct an Angle Bisector (Bisect an Angle) – p. 40

11-12: Measure ∠MNO with your protractor and fill in the blank. Using your compass and ruler, construct the bisector of ∠MNO. Name the ray NW. Write the measure of ∠MNW in the blank.

11. m∠MNO = $141°$

12. m∠MNW = $70.5°$

13. What do you observe about the measures of ∠MNO and ∠MNW? m∠MNW = $\frac{1}{2}$ m∠MNO
2m∠MNW = m∠MNO

## Construct a Perpendicular through a Point on the Line – p. 55

14: Place the point of your compass at point C. Draw arcs to the left and right of point C, intersecting line *n*. Label the points of intersection A and B. Open the compass to a setting greater than AC. Put the compass at point A and draw an arc above line *n*. Using the same compass setting place the compass at point B and draw an arc above line n and intersecting the previous arc. Label the point of intersection D. Use a straightedge to draw line CD.
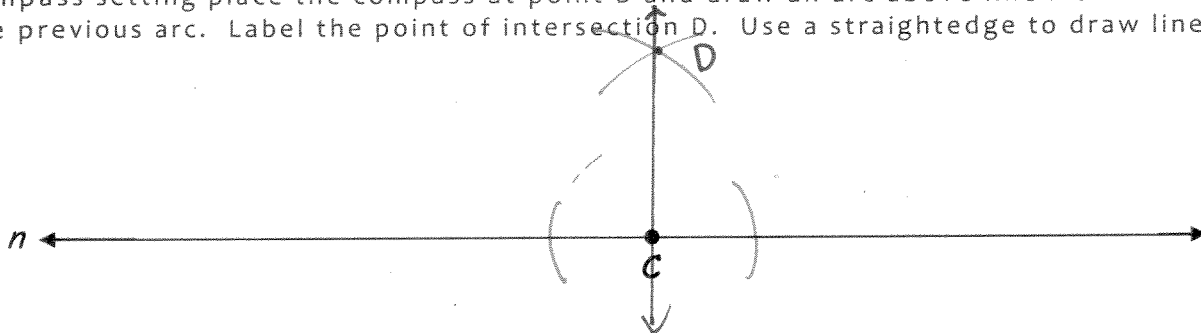
15. What is the relationship of line *n* and line CD? $n \perp \overleftrightarrow{CD}$

Construct a Perpendicular through a Point not on the Line – p. 55

16: Place the point of your compass at point Z. Draw an arc that intersects line *m* in two different places. Label the points of intersection X and Y. Open the compass to a setting greater than ½XY. Put the compass at point X and draw an arc below line *m*. Using the same compass setting, place the compass at point Y and draw an arc intersecting the previous arc drawn. Label the point of intersection A. Use a straightedge to draw line ZA.
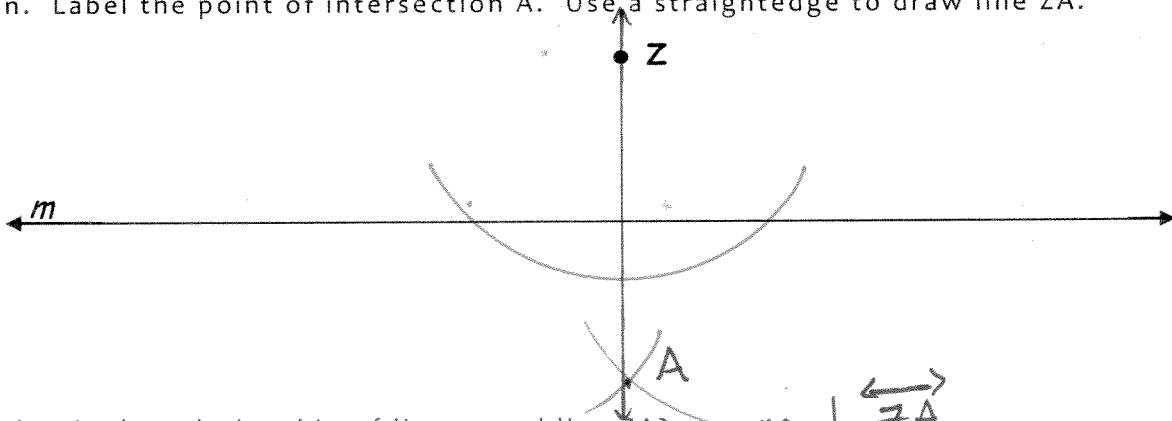
17. What is the relationship of line *m* and line ZA? $m \perp \overleftrightarrow{ZA}$