

Lesson 1-9L - Applications of Constructions

Agenda:

- Check and review 1-8L Homework
- Warm up quiz F
- Guided Practice - Need Tools Pouch

Homework

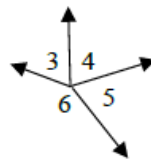
- 1-9L Worksheet - You need a compass & straight edge

Warm up quiz F:

Write an equation using angles 3,4,5,6 (their measures) and a reason for each scenario

F

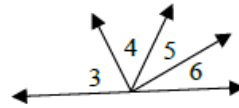
1)



$$m\angle 3 + m\angle 4 + m\angle 5 + m\angle 6 = \underline{360^\circ}$$

because ANGLES AT A POINT SUM TO 360°

2)

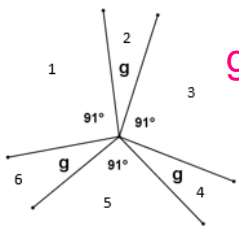


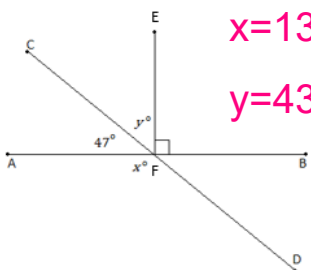
$$m\angle 3 + m\angle 4 + m\angle 5 + m\angle 6 = \underline{180^\circ}$$

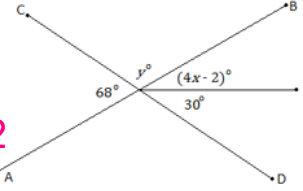
because ANGLES ON A LINE SUM TO 180°

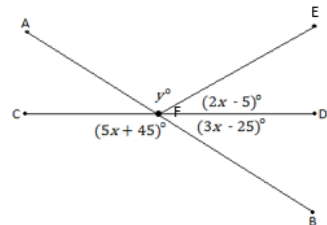
Homework 1-7R / 1-8L Answers

Problem Set
Find the value of x and/or y in each diagram below. Show all the steps and explain your reasoning along the way. If you need help with the systems of equations, refer to your textbook pages 152-153 and the earlier example in the notes.

7.  **$g=21$**

8.  **$x=133$
 $y=43$**

9. (System)  **$x=10$
 $y=112$**

10.  **$x=20$
 $y=110$**

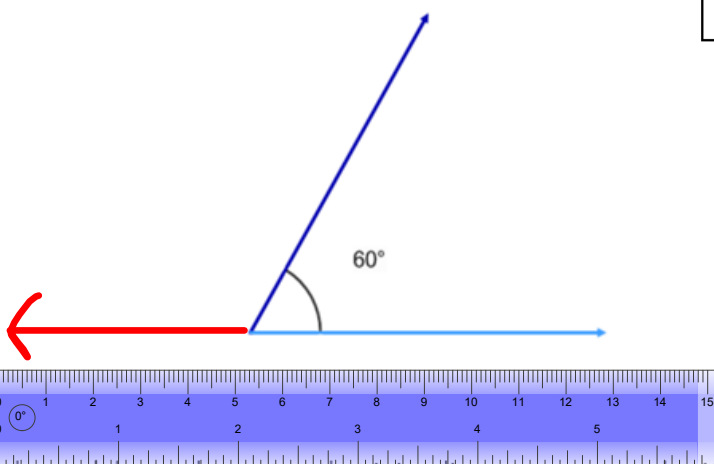
Using Opposite Rays; Bisect / Copy Angle

Exploration #1:

- 1) Draw a 60° angle using your universal angle maker.

Basic Construction Skills:

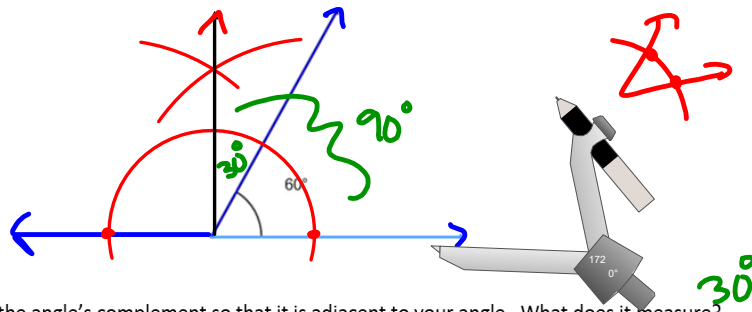
- Copy Segment
- Bisect Segment
- Copy Angle
- Bisect Angle



- 2) Construct the angle's supplement so that it is adjacent to your angle. What does it measure? **120°**
- 3) What is another name for this angle pair? **LINEAR PAIR**

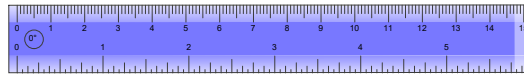
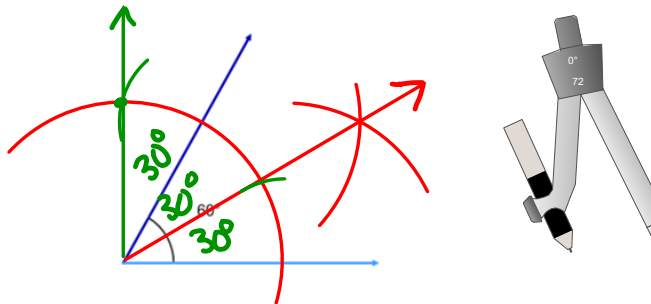
Exploration #2:

1) Draw a 60° angle using your universal angle maker.



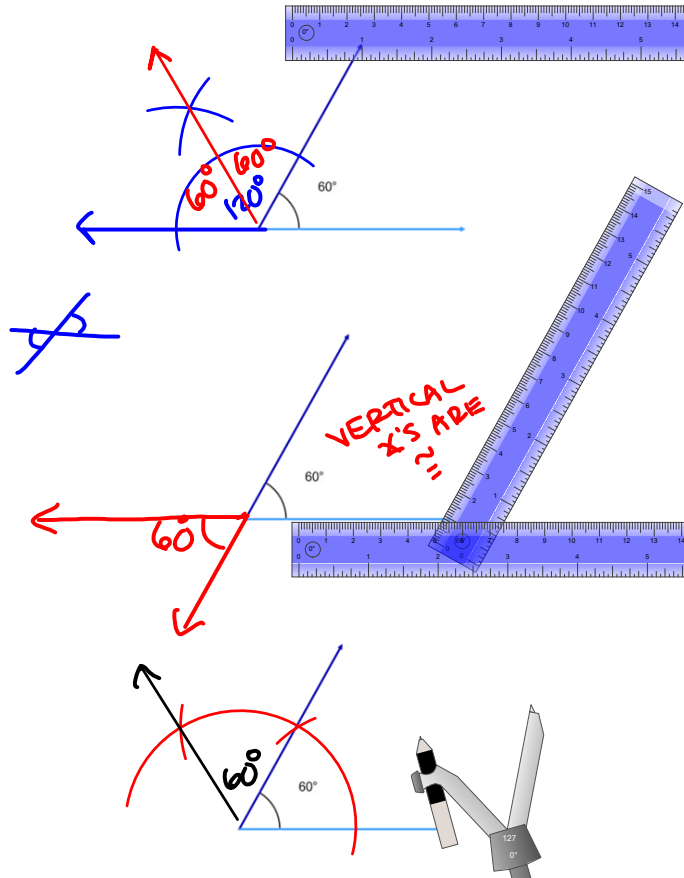
2) Construct the angle's complement so that it is adjacent to your angle. What does it measure?

3) Construct the complementary angle differently than you previously used:



Exploration #3

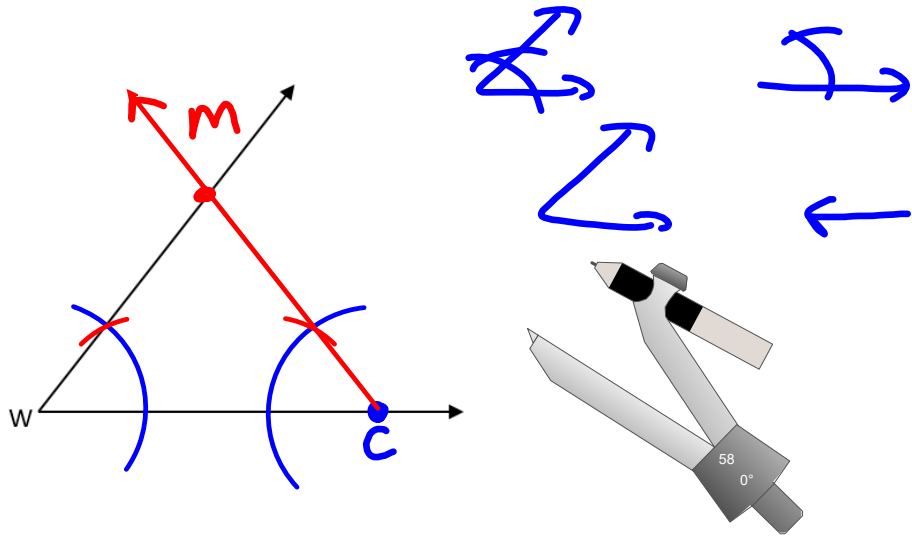
Given the 60° angles, find 3 ways to construct another 60° angle:



Exploration #4:

Recall: An isosceles triangle has two congruent base angles.

Construct an isosceles triangle $\triangle CMW$ with congruent base angles $\angle W$ and $\angle C$.

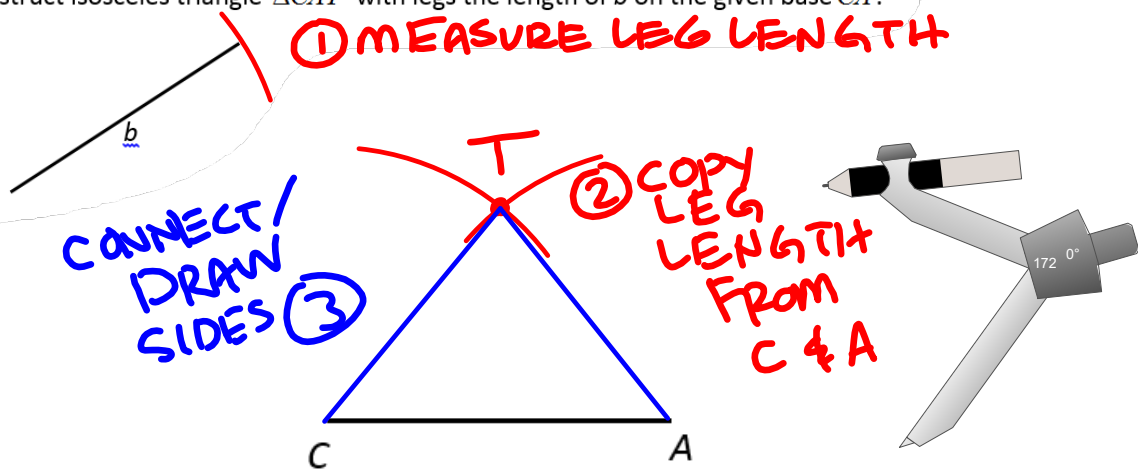


Using Copy / Bisect a Segment

Exploration #5: Isosceles Triangle

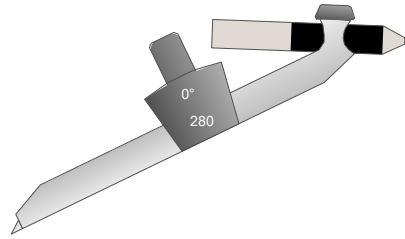
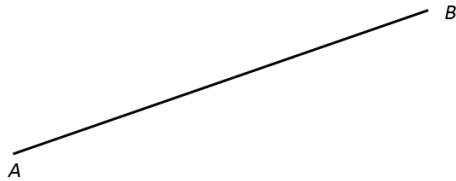
Recall: An isosceles triangle has two congruent sides called legs.

Construct isosceles triangle $\triangle CAT$ with legs the length of b on the given base \overline{CA} .



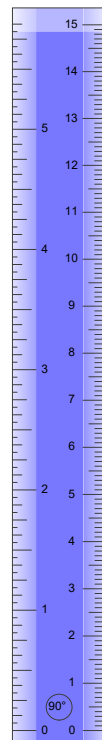
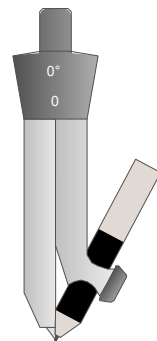
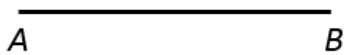
Exploration #6: Divide a Segment into 4ths

Construct segment \overline{AD} such that $AD = \frac{1}{4}(AB)$.



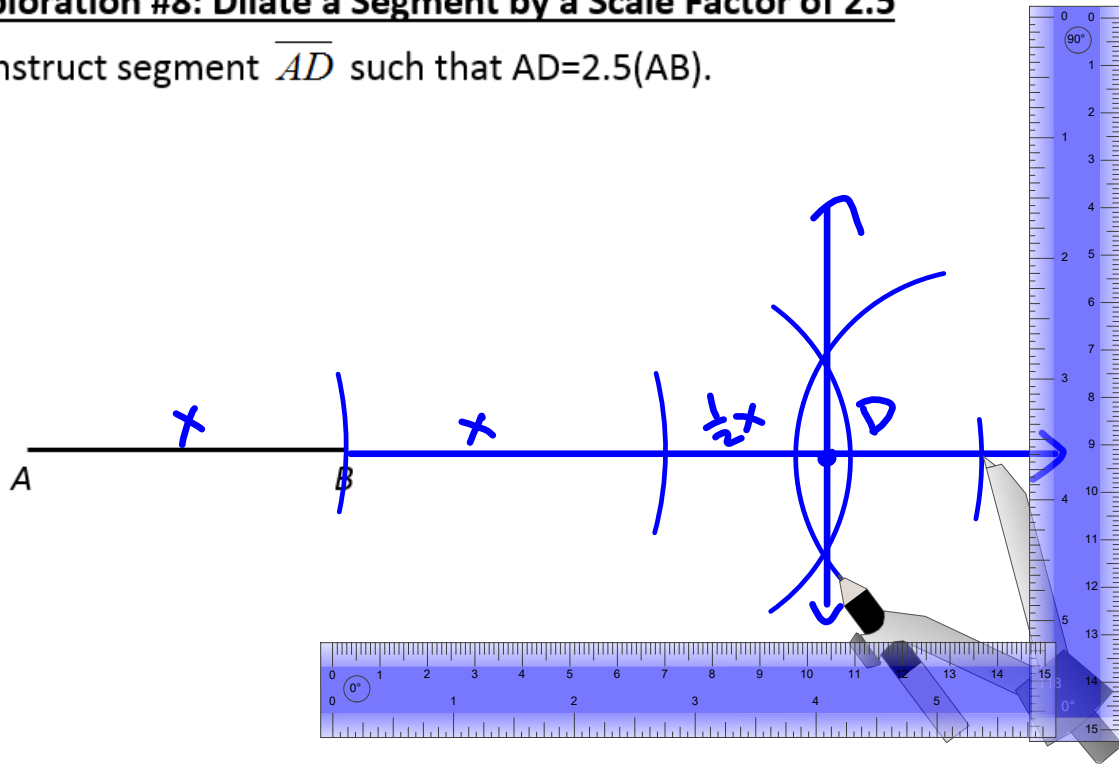
Exploration #7: Dilate a Segment by a Scale Factor of 2

Construct segment \overline{AC} such that $AC = 2(AB)$.



Exploration #8: Dilate a Segment by a Scale Factor of 2.5

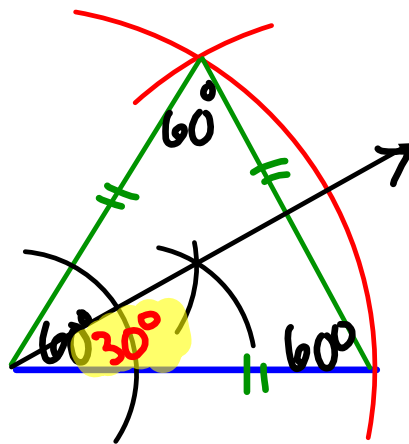
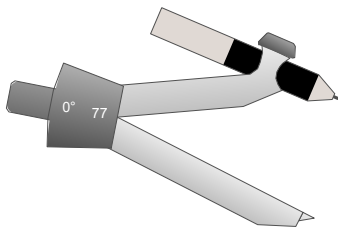
Construct segment \overline{AD} such that $AD=2.5(AB)$.



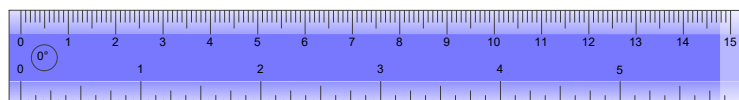
Combining Segment and Angle Skills

Exploration #9: Construct a 30° Angle.

Recall: An equilateral triangle's angles each measure 60°. What if you aren't given a 60° angle?



- ① DRAW A SEGMENT
- ② COPY SEG
2x → LEGS
EQUIL. Δ
- ③ CONNECT SIDES
- ④ BISECT 1x



Exploration #10: Construct a triangle given the side lengths b and c with Angle A .

