

## Lesson 1-8R - Applications of Constructions

### Agenda:

- Check and review 1-7R Homework
- Warm up quiz F
- Guided Practice - Need Tools Pouch
- Go over quiz 1 (Gold sheet = sign & return with action plan)

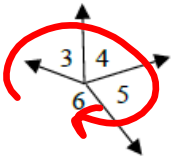
### Homework

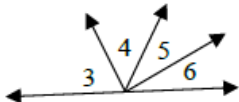
- 1-8R Worksheet - You need a compass & straight edge
- Regents: P 35: #5,7,12,14,19,21-24 for test next class

Warm up quiz F:

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

F

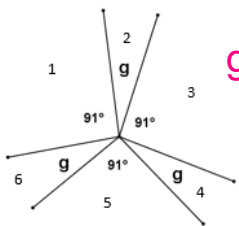
1)   $m\angle 3 + m\angle 4 + m\angle 5 + m\angle 6 = 360^\circ$   
because ANGLES AT A POINT SUM TO  $360^\circ$

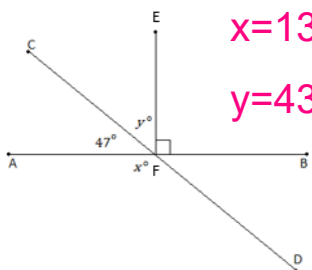
2)   $m\angle 3 + m\angle 4 + m\angle 5 + m\angle 6 = 180^\circ$   
because ANGLES ON A LINE SUM TO  $180^\circ$

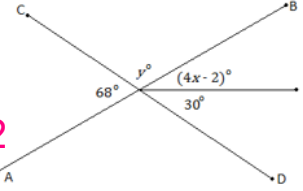
**Homework 1-7R / 1-8L Answers**

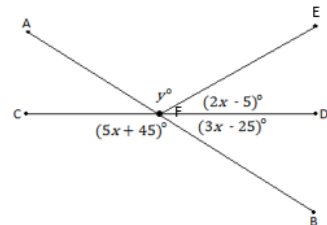
**Problem Set**

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

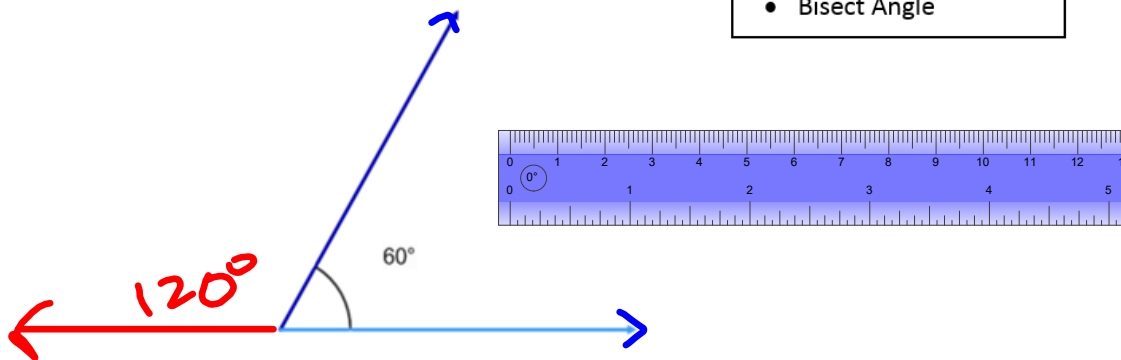
**Using Opposite Rays; Bisect / Copy Angle**

**Exploration #1:**

- 1) Draw a  $60^\circ$  angle using your universal angle maker.

**Basic Construction Skills:**

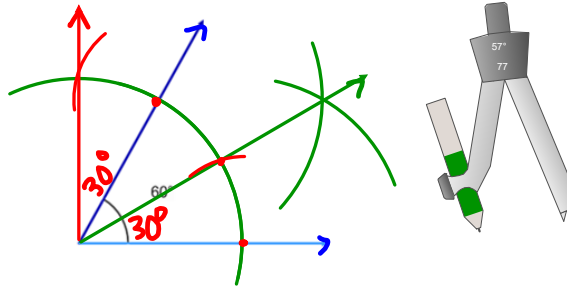
- Copy Segment
- Bisect Segment
- Copy Angle
- Bisect Angle



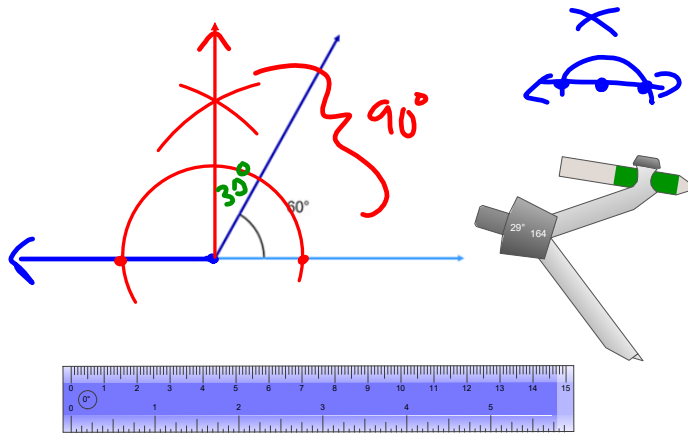
- 2) Construct the angle's supplement so that it is adjacent to your angle. What does it measure?  **$120^\circ$**
- 3) What is another name for this angle pair? **LINEAR PAIR**

**Exploration #2:**

1) Draw a  $60^\circ$  angle using your universal angle maker.

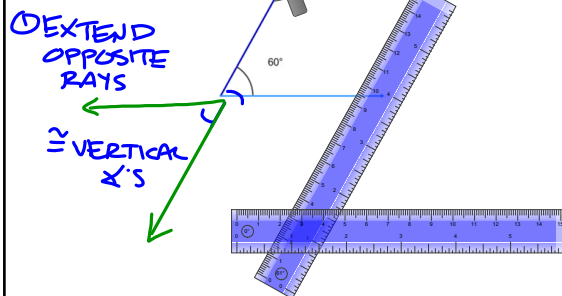
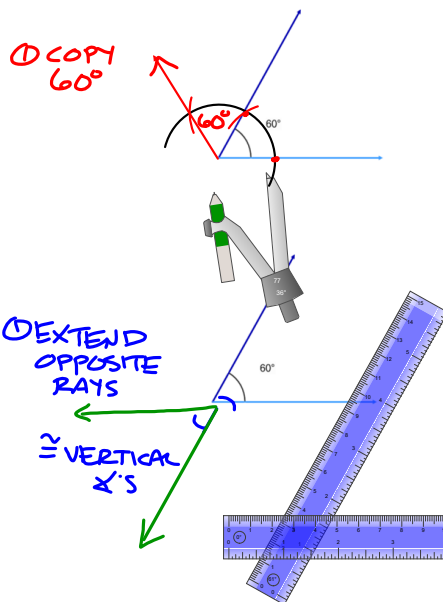
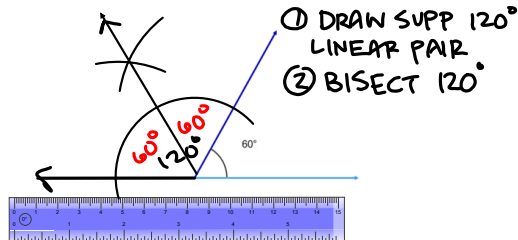


2) Construct the angle's complement so that it is adjacent to your angle. What does it measure? 30  
 3) Construct the complementary angle differently than you previously used:



**Exploration #3**

Given the  $60^\circ$  angles, find 3 ways to construct another  $60^\circ$  angle:

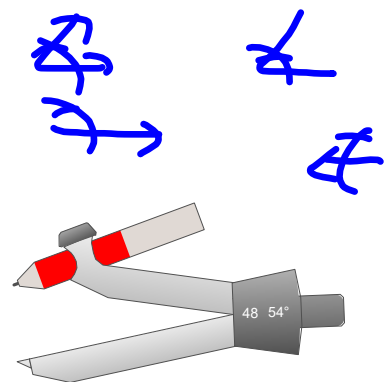
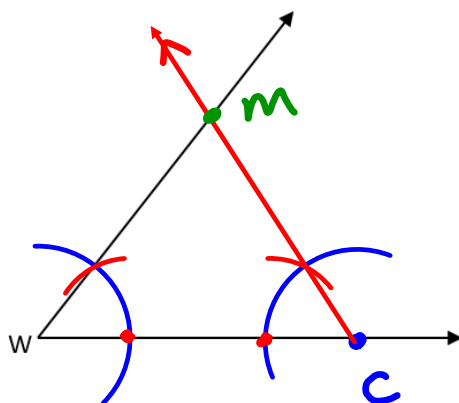




**Exploration #4:**

*Recall: An isosceles triangle has two congruent base angles.*

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

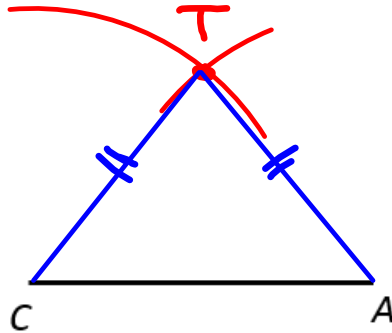
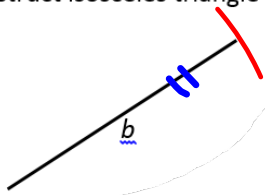


**Using Copy / Bisect a Segment**

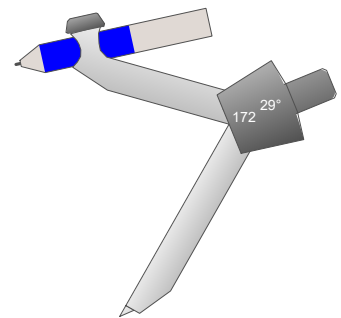
**Exploration #5: Isosceles Triangle**

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  $\overline{CA}$ .

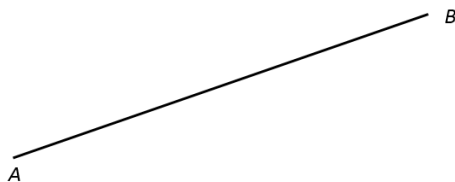
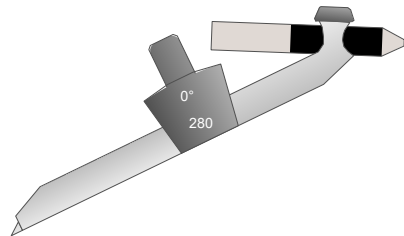


① COPY LEG LENGTH FROM EACH  $\Delta$  VERTEX  
② DRAW SIDES



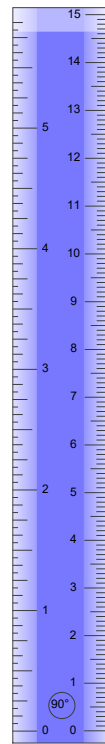
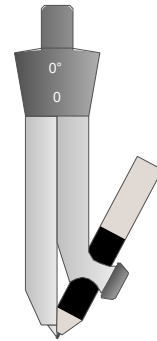
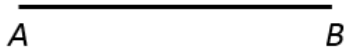
**Exploration #6: Divide a Segment into 4ths**

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**

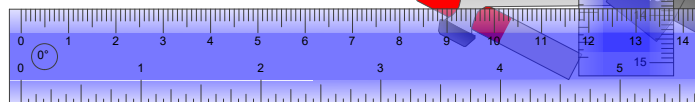
Construct segment  $\overline{AD}$  such that  $AD=2.5(AB)$ .

A

B

C

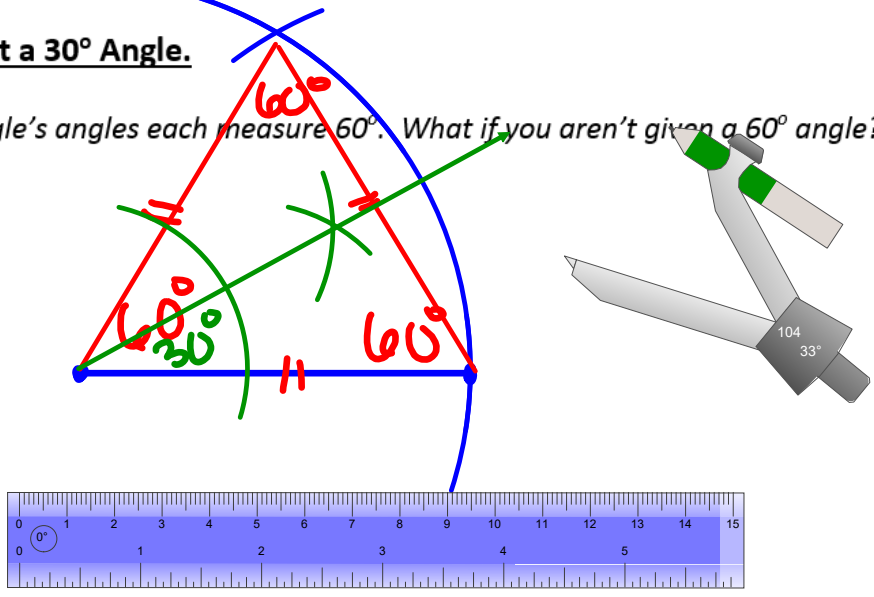
D



**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?



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

