
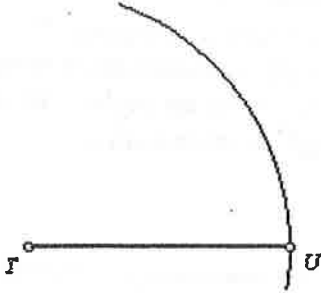
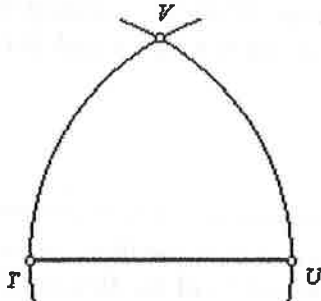
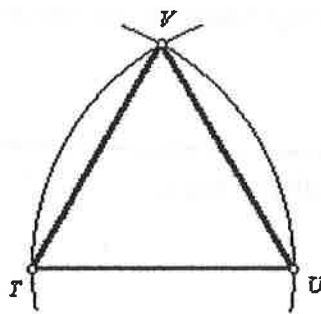
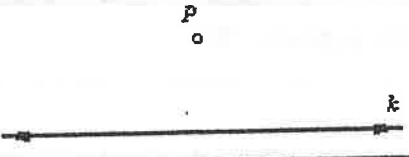
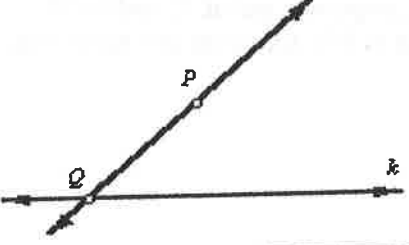
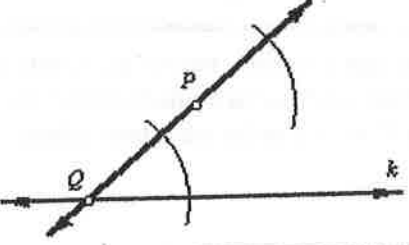
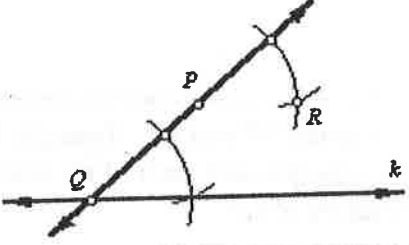
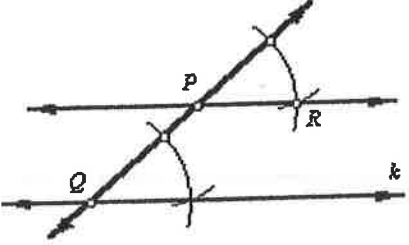


# Construct an Equilateral Triangle

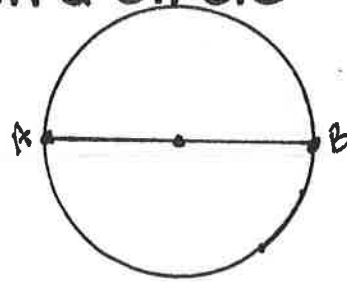
<p>1. Begin with line segment <math>TU</math>.</p>	
<p>2. Center the compass at point <math>T</math>, and set the compass radius to <math>TU</math>. Draw an arc as shown.</p>	
<p>3. Keeping the same radius, center the compass at point <math>U</math> and draw another arc intersecting the first one. Let point <math>V</math> be the point of intersection.</p>	
<p>4. Draw line segments <math>TV</math> and <math>UV</math>. Triangle <math>TUV</math> is an equilateral triangle, and each of its interior angles has a measure of <math>60^\circ</math>.</p>	

# Construct Two Parallel Lines

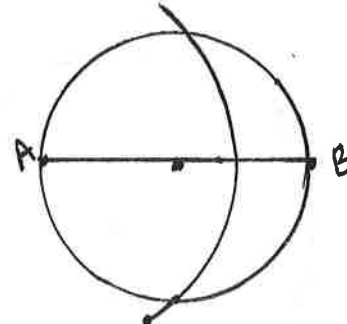
<p>1. Begin with point <math>P</math> and line <math>k</math>.</p>	
<p>2. Draw an arbitrary line through point <math>P</math>, intersecting line <math>k</math>. Call the intersection point <math>Q</math>. Now the task is to construct an angle with vertex <math>P</math>, congruent to the angle of intersection.</p>	
<p>3. Center the compass at point <math>Q</math> and draw an arc intersecting both lines. Without changing the radius of the compass, center it at point <math>P</math> and draw another arc.</p>	
<p>4. Set the compass radius to the distance between the two intersection points of the first arc. Now center the compass at the point where the second arc intersects line <math>PQ</math>. Mark the arc intersection point <math>R</math>.</p>	
<p>5. Line <math>PR</math> is parallel to line <math>k</math>.</p>	

# Construct a Square Inscribed in a Circle

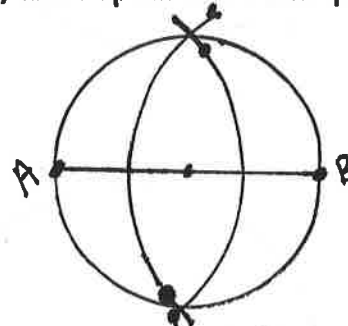
1. Draw a circle with center and a diameter  $\overline{AB}$



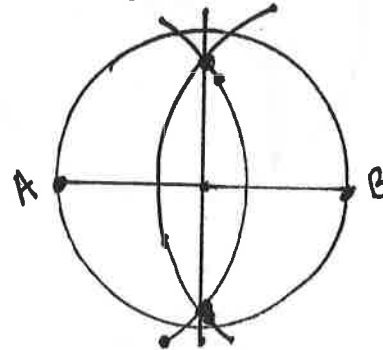
2. Place the center of the compass on A and make an arc. The arc needs to be over  $\frac{1}{2}$  the distance of the diameter.



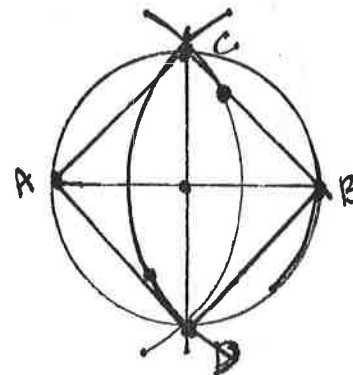
3. Pick up the compass with your pencil in the same hole, and repeat the same process with the center of your compass on B.

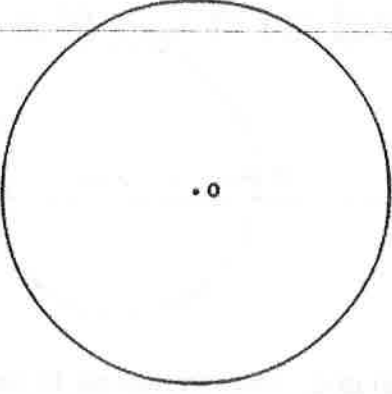
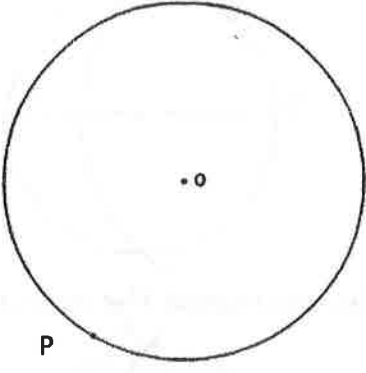
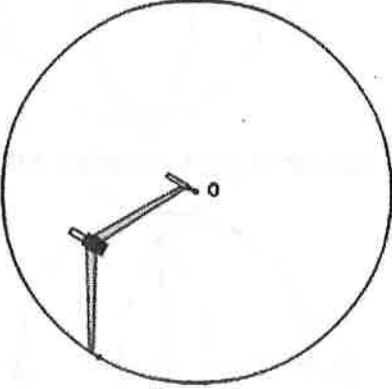
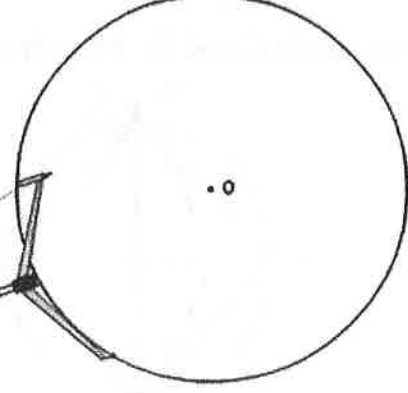


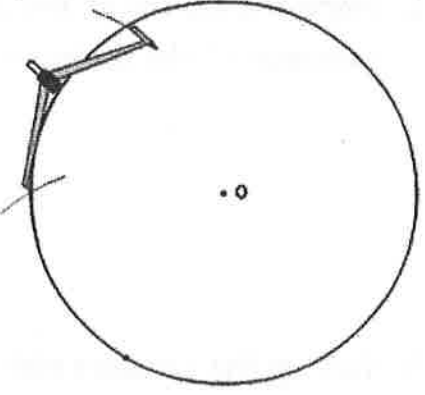
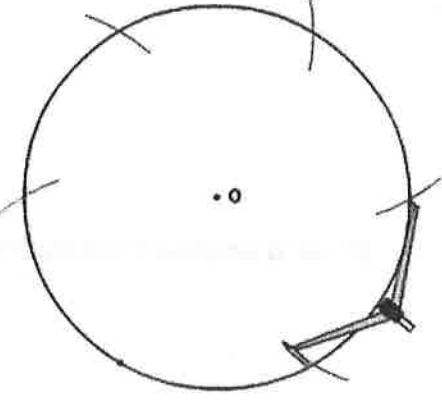
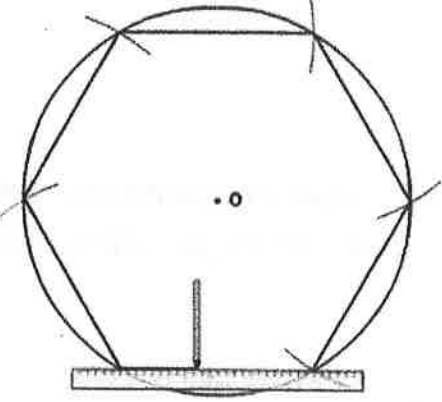
4. Draw a segment connecting the points where the two arcs just created intersect.



5. Label the points where the segment intersects the circle C and D. Now draw segments  $\overline{AC}$ ,  $\overline{AD}$ ,  $\overline{BC}$ , and  $\overline{BD}$  to form a square.



<p>We start with the given circle, center O.</p>	
<p>1. Mark a point anywhere on the circle. This will be the first vertex of the hexagon. Label it point P.</p>	
<p>2. Set the center of the compass on P and find a whole that matches the center of the circle. The compass is now set to the radius of the circle</p>	
<p>3. Using that same length, make an arc across the circle. This will be the next vertex of the</p>	

<p>hexagon.</p> <p>It turns out that the side length of a hexagon is equal to its radius -</p>	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <h2>CONSTRUCT A HEXAGON INSCRIBED IN A CIRCLE</h2> </div>
<p>4. Move the compass on to the next vertex and draw another arc. This is the third vertex of the hexagon.</p>	
<p>5. Continue in this way until you have all six vertices.</p>	
<p>6. Draw a line between each successive pairs of vertices, for a total of six lines.</p>	

\* To inscribe an equilateral triangle, connect every other vertex of the hexagon.

## **Constructions Part 2:**

### ***Constructing an Equilateral Triangle***

\*Note: This video uses a regular compass and not a safe-t compass like your orange ones. When she talks about setting a length, follow the same process we previously talked about by looking for the opening in your compass that will match the needed length.

<https://www.youtube.com/watch?v=t-ZtoNhEYWQ>



### ***Constructing 2 Parallel Lines:***

<https://www.youtube.com/watch?v=1iNeBCtThK4>





***Constructing a Square Inside a Circle***

<https://www.youtube.com/watch?v=kAevs-sZAEk&t=4s>



***Constructing a Regular Hexagon Inside a Circle***

<https://www.youtube.com/watch?v=bVjPUQEIZto>



