

2.2.1: Angles Formed by Parallel Lines

Curricular Competencies

A3: I can use tools and technology to explore

B3: I can apply flexible and strategic approaches to problems

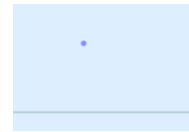
C1: I can explain and justify math ideas and decisions

Corresponding angles created by a transversal and parallel lines are equal.

How can you construct parallel lines using a protractor?

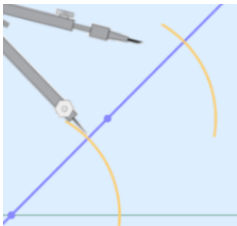
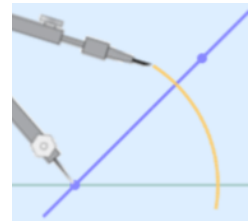
To CONSTRUCT parallel lines using a straight edge and a compass:

1. Start with a _____ and a _____ at a place above the line.



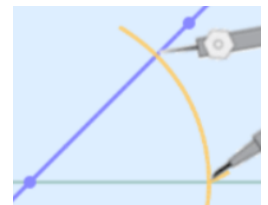
2. Draw a _____ line that goes through the _____ and the _____.

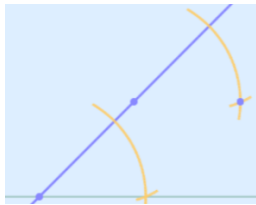
3. Using a _____ draw an _____ from where the two _____ meet. The arc must _____ both _____.



4. Without adjusting the _____, scribe another _____ from the _____ _____ through the _____.

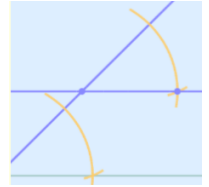
5. From the _____ arc, use the _____ to _____ how far to the _____ line.





6. Move the compass to the _____ arc and _____ a small arc showing this _____.

7. Use a _____ to _____ the two points.



Your Turn: Follow the 7 steps above and CONSTRUCT parallel lines of your own.

Measure your lines with a protractor. Are they parallel? Why might they not be parallel?

Recall: Sketch pairs of parallel lines with a transversal and clearly indicate:

Corresponding Angles Interior Angles Exterior Angles Alternate Interior Angles

What do we KNOW about the following angle relationships formed by a transversal and parallel lines?

Corresponding Angles:

Alternate Interior Angles:

Interior Angles:

Exterior Angles:

Alternate Exterior Angles:

We can use deductive reasoning to find missing angles in diagrams.

A. Find the measure of angles 2-8 if $\angle 1 = 115^\circ$.

$\angle 2 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\angle 3 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

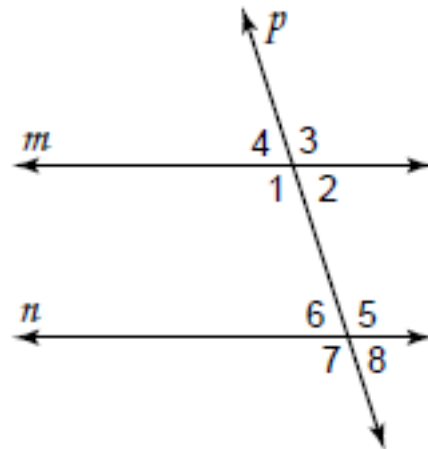
$\angle 4 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\angle 5 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\angle 6 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\angle 7 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\angle 8 = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$



B. In the figure, $\ell \parallel m$. Find the measure of each angle.

1. If $m\angle 7 = 100$, find $m\angle 3$.

2. If $m\angle 7 = 95$, find $m\angle 6$.

3. If $m\angle 1 = 120$, find $m\angle 5$.

4. If $m\angle 4 = 20$, find $m\angle 7$.

5. If $m\angle 3 = 140$, find $m\angle 8$.

6. If $m\angle 4 = 30$, find $m\angle 1$.

7. If $m\angle 4 = 40$, find $m\angle 2$.

9. If $\ell \perp t$, find $m\angle 3$.

8. If $m\angle 7 = 125$, find $m\angle 4$.

10. If $m\angle 1 + m\angle 3 = 230$, find $m\angle 6$.

