

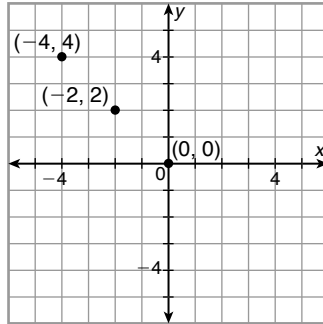
Date _____

Dear Family,

In this chapter, your child will learn the difference between **inductive** and **deductive reasoning**. Your child will make **conjectures** and learn to verify them using deductive reasoning. Your child will also begin to recognize the different types of **biconditional statements**.

Your child will learn to recognize patterns and make conjectures.

Look at the figure:



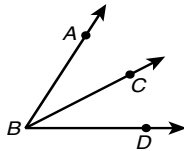
Notice how the points on this graph are arranged in a line.

The following conjecture can be written about these points on the coordinate plane: To find the next point in the grid, add 2 to the x -coordinate and subtract 2 from the y -coordinate.

Your child will then use the conjecture to make a guess as to where the next points on the graph will be. Based on the conjecture, the next two points on the grid will be at $(2, -2)$ and $(4, -4)$.

Your child will also learn to write and analyze conditional statements made about geometric figures.

Look at the figure below:



A **conditional statement** can be written about this figure:

If \overrightarrow{BC} bisects $\angle ABD$, then $\angle ABC$ is equal to $\angle CBD$.

A **converse statement** can be written from this conditional statement. This would be the following: If $\angle ABC$ is equal to $\angle CBD$, then \overrightarrow{BC} bisects $\angle ABD$.

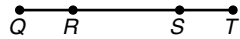
Your child will also learn to write **inverse statements** based on conditional statements. An example of an inverse statement with this diagram is: If \overrightarrow{BC} does not bisect $\angle ABD$, then $\angle ABC$ is not equal to $\angle CBD$.

Another statement that can be written is a **contrapositive statement**. The following is a contrapositive statement based on this figure: If $\angle ABC$ is not equal to $\angle CBD$, then \overrightarrow{BC} does not bisect $\angle ABD$.

Your child will also begin to solve geometric proofs in this chapter.

An example of a proof that your child may solve is given below. Note that for every statement, there is a reason that explains that statement.

Given: $\overline{QS} \cong \overline{RT}$



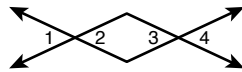
Prove: $\overline{QR} \cong \overline{ST}$

Proof:

Statements	Reasons
1. $\overline{QS} \cong \overline{RT}$	1. Given
2. $QS = RT$	2. Definition of congruent segments
3. $QR + RS = QS, RS + ST = RT$	3. Segment Addition Postulate
4. $QR + RS = RS + ST$	4. Substitution
5. $RS = SR$	5. Reflexive Property of Equality
6. $QR = ST$	6. Subtraction Property of Equality
7. $\overline{QR} \cong \overline{ST}$	7. Definition of congruent segments

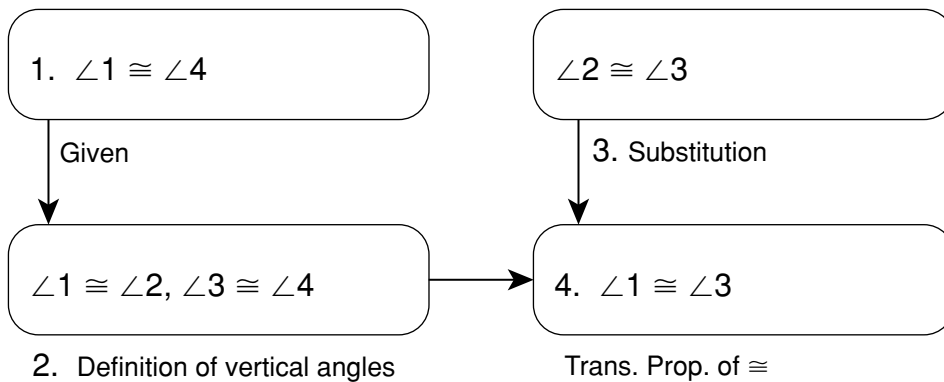
Your child will solve proofs in a two-column format, as seen above, or in a flowchart as indicated below.

Given: $\angle 1 \cong \angle 4$



Prove: $\angle 1 \cong \angle 3$

Proof:



For additional resources, visit go.hrw.com and enter the keyword MG7 Parent.