



# Geometry Workbook

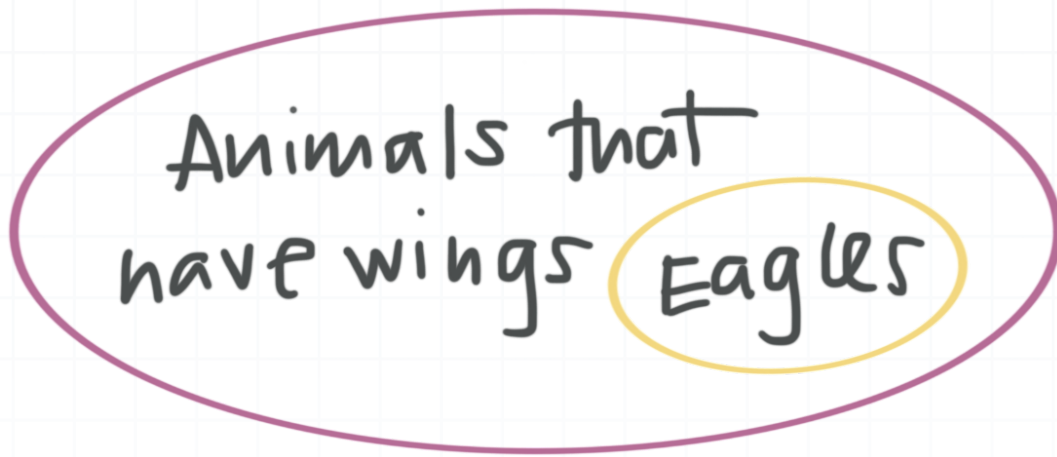
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Logic

*krista king*  
MATH

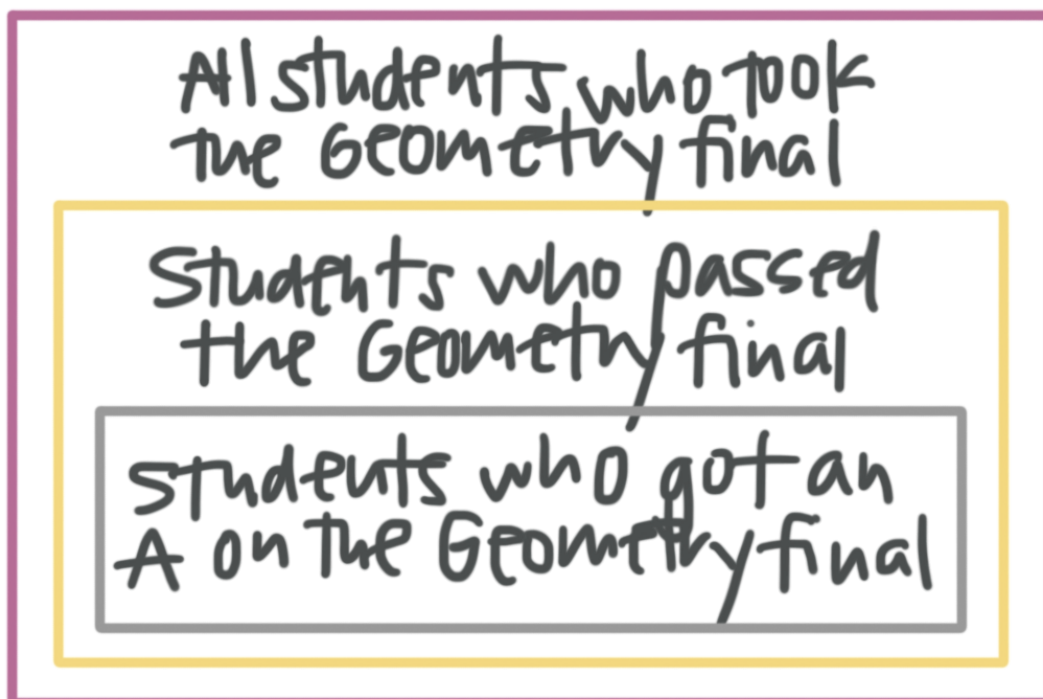
## CONDITIONALS AND EULER DIAGRAMS

- 1. Write the if-then statement that corresponds to the Euler diagram.



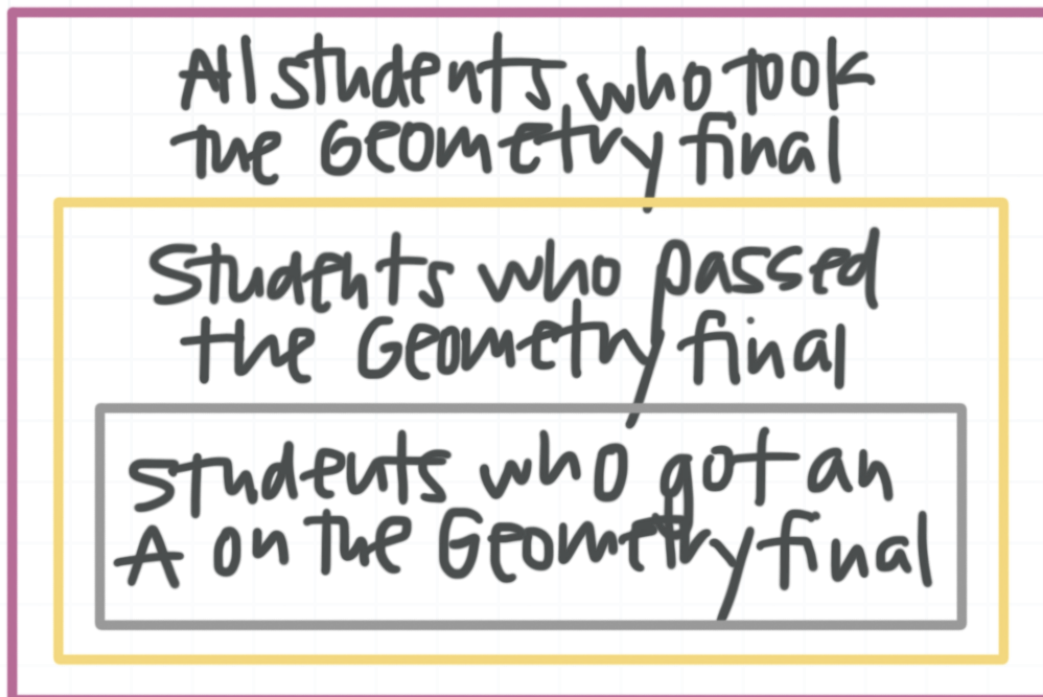
- 2. True or false? The if-then statement is true based on the Euler diagram.

“If a student passed the geometry final, then they got an A.”



- 3. True or false? The statement is true based on the Euler diagram.

“If a student took the Geometry final exam, then they passed the test.”



- 4. Draw a Euler diagram for the statement, “All quadrilaterals are polygons.”



## CONVERSES OF CONDITIONALS

- 1. Write the converse for the if-then statement.

“If  $M$  is a midpoint of  $\overline{AB}$ , then  $AM = MB$ .”

- 2. Write the converse for the if-then statement.

“If a polygon is a triangle, the sum of its angles is  $180^\circ$ .”

- 3. Write the converse of the if-then statement. Then determine if the converse is always, sometimes, or never true.

“If  $\angle 1$  and  $\angle 2$  are vertical angles, then they are congruent.”

- 4. Write the converse of the if-then statement. Determine if the converse is true or false. If it's false, provide a counterexample.

“If an animal is a cow, then it has four legs.”



## ARRANGING CONDITIONALS IN A LOGICAL CHAIN

- 1. Fill in the blank with a logical conclusion.

All parallelograms have four sides.

All four-sided figures are quadrilaterals.

All parallelograms \_\_\_\_\_.

- 2. If Jane's alarm does not go off, she will be late to school. If Jane is late to school, she will get in trouble. Jane got in trouble. Can a valid conclusion be drawn? Explain.

- 3. Write the missing statement that will make the conclusion true.

1. If a driver is going 60 mph, he is speeding.

2. \_\_\_\_\_

Conclusion: If a driver is going 60 mph, he will get a speeding ticket.

- 4. All squares are rectangles. Rewrite this statement in if-then form:  
 $JKLM$  is a rectangle. Can a valid conclusion be drawn?



