

MATH 6: EUCLIDEAN GEOMETRY REVIEW

REVIEW

Here are some geometry review homework problems. **You may use any of the theorems we have proved to help you solve these problems, so you may want to review the theorems.**

Just to reiterate, *you may use any of the geometry theorems we have proved, so you may want to review them.*

- Explain what an axiom is. Why do we use them? Do we need them?
 - Explain what a theorem is. What is the difference between a theorem and an axiom?
- Give the definition for the following geometric objects, and explain why you think it might be useful to define them that way:
 - Triangle
 - Right Angle
 - Circle
 - Diameter of a Circle
- Recall that we covered seven axioms in our geometry material. Look through your notes and find all seven axioms, and then write them up in a single list.
Then, use the definitions and axioms you have listed to prove the following statement:
A triangle cannot have two right angles.
- Suppose you have one circle centered at O and another centered at P , and the two circles intersect at two points X and Y . Use one of the triangle congruence axioms to prove that $\triangle OXP \cong \triangle OYP$. Which of the congruence axioms did you use?
- Give the definition of "similar triangles".
 - Prove that if $\triangle ABC \sim \triangle XYZ$, then $\frac{AB}{BC} = \frac{XY}{YZ}$.
- Let $ABCD$ be a quadrilateral.
 - If $AB \parallel CD$ and $\angle A \cong \angle C$, must $ABCD$ be a parallelogram?
 - If $AB \cong CD$ and $\angle A \cong \angle C$, must $ABCD$ be a parallelogram?
- Given two tangent circles, use straightedge and compass to construct a third circle that is tangent to both of the first two.