

Name:

Mr. Freeman

Date:

Geometry Exploration Lab

freeman@pioneerccss.org

Topic: 4.1 Triangle Angle Side Relationship and Triangle Inequality

1. What is the Pythagorean Theorem? Write the general formula.
2. Draw a right triangle $\triangle ABC$ with $\angle ABC = 90^\circ$, $\overline{AB} = 3$, and $\overline{BC} = 4$.

- Find side \overline{AC} . (Hint: Use the Pythagorean Theorem)
- Fill out the table below.

\overline{AB}	$\overline{AC} + \overline{BC}$
\overline{BC}	$\overline{AB} + \overline{AC}$
\overline{AC}	$\overline{AB} + \overline{BC}$

- What pattern do you notice?

3. Draw an isosceles triangle $\triangle XYZ$ where $\overline{XY} = 6$, $\overline{YZ} = 6$, and $\overline{XZ} = 8$.

- Fill out the table below.

\overline{XY}	$\overline{YZ} + \overline{XZ}$
\overline{YZ}	$\overline{XY} + \overline{XZ}$
\overline{XZ}	$\overline{XY} + \overline{YZ}$

- What pattern do you notice?

4. Draw any equilateral triangle $\triangle DEF$.

- Fill out the table below.

Name:

Mr. Freeman

Date:

Geometry Exploration Lab

freeman@pioneerccss.org

\overline{DE}	$\overline{EF} + \overline{DF}$
\overline{EF}	$\overline{DE} + \overline{DF}$
\overline{DF}	$\overline{DE} + \overline{EF}$

- What pattern do you notice?

5. Using what you've learned, make a general theory about the relationship of the sides of any triangle.