

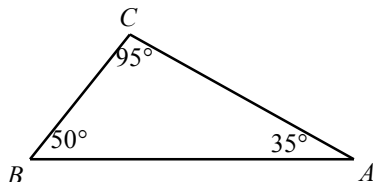
TRIANGLE SIDE ANGLE RELATIONSHIPS

COMPARING MEASUREMENTS IN A TRIANGLE

In a triangle, the longest side is the side opposite the largest angle and the smallest side is the side opposite the smallest angle.

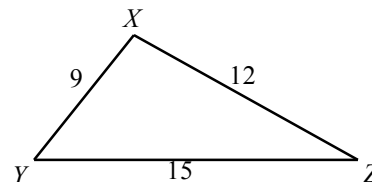
Examples

For this triangle, determine the longest side and the shortest side.



Since $\angle C$ is the largest angle, \overline{AB} is the longest side. Since $\angle A$ is the smallest angle, \overline{BC} is the shortest side.

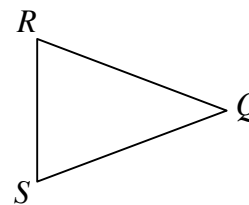
For this triangle, arrange the angles from least to greatest.



The smallest angle is opposite the shortest side so: $\angle Z < \angle Y < \angle X$.

Problems

Use the triangle at right for reference to answer each question. It is not to scale.



1. If $RQ = 10$, $SQ = 9$, and $RS = 8$, arrange the angles from least to greatest.
2. If $m\angle R = 79^\circ$, $m\angle Q = 69^\circ$, and $m\angle S = 32^\circ$, determine the longest side and the shortest sides of the triangle.
3. If $RQ = 6$ and $SQ = 5$, what conclusion can be correctly reached?
4. If $m\angle R = 60^\circ$ and $m\angle Q = 50^\circ$, which side is longest?
5. If $m\angle R = m\angle S$ and $m\angle Q = 70^\circ$, arrange the sides from least to greatest.
6. If $\overline{RQ} \cong \overline{SQ} \cong \overline{RS}$, what is true of the angles?

Answers

1. $\angle Q < \angle R < \angle S$

3. $\angle S > \angle R$

5. $SQ = RQ < RS$

2. $\overline{SQ}, \overline{RQ}$

4. \overline{RQ}

6. $m\angle Q = m\angle R = m\angle S = 60^\circ$