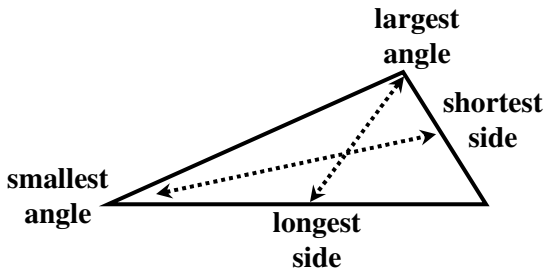
Chapter 6 Summary Sheet

The largest angle and longest side are opposite to each other.

The smallest angle and shortest side are opposite to each other.



Constructing a Triangle

Given three different segments, you can construct a triangle if the sum of the two smallest segments lengths is greater than the third.

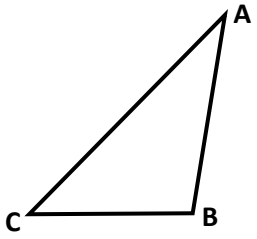
Triangle Inequality Theorem

The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

$AB + BC > AC$

$AC + BC > AB$

$AB + AC > BC$



Ratio – Another name for a fraction

Proportion – The equality of two ratios

Proportional – a term used to describe that the ratio of all the corresponding sides of two polygons are equal.

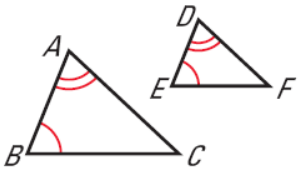
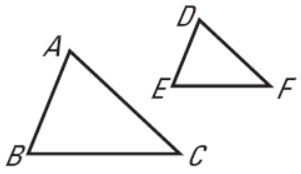
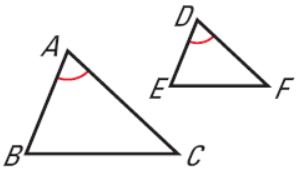
Scale Factor – The ratio of the corresponding sides of two similar figures.
It tells you how much bigger or smaller two figures are to one another.

Similar – two polygons where the ratio of the corresponding sides are equal and the corresponding angles are congruent. The symbol for similarity is $\sim$

Similarity simply means that two polygons are identical, but typically different in size.

If $\Delta ABC \sim \Delta DEF$, then $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$ and $\angle A \cong \angle D, \angle B \cong \angle E, \angle C \cong \angle F$

The 3 Shortcuts for Proving Two Triangles are Similar

AA Similarity Postulate	SSS Similarity Theorem	SAS Similarity Theorem
		
If $\angle A \cong \angle D$ and $\angle B \cong \angle E$, then $\triangle ABC \sim \triangle DEF$.	If $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.	If $\angle A \cong \angle D$ and $\frac{AB}{DE} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

Congruence vs. Similarity

Congruent Triangles	Similar Triangles
$\Delta ABC \cong \Delta DEF$	$\Delta ABC \sim \Delta DEF$
$\overline{AB} \cong \overline{DE}$ $\quad \angle A \cong \angle D$	$\angle A \cong \angle D$
$\overline{BC} \cong \overline{EF}$ $\quad \angle B \cong \angle E$	$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$ $\quad \angle B \cong \angle E$
$\overline{AC} \cong \overline{DF}$ $\quad \angle C \cong \angle F$	$\angle C \cong \angle F$

If $\Delta ABC \sim \Delta DEF$ and the ratio of any of the corresponding sides is $\frac{1}{1}$, then $\Delta ABC \cong \Delta DEF$.

If two triangles are similar, then they are <u>sometimes</u> congruent.

If two triangles are congruent, then they are <u>always</u> similar.