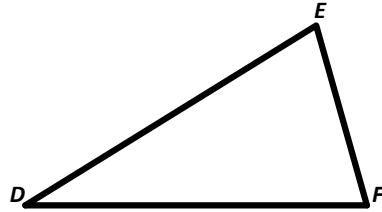
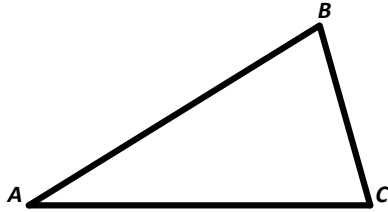


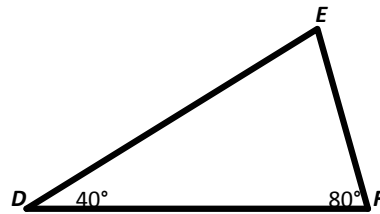
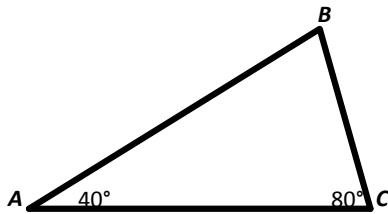
Congruent Triangles

Congruent Triangles - Two triangles are congruent if and only if their corresponding parts are congruent.

$$\triangle ABC \cong \triangle DEF$$



Third Angle Theorem - If two angles of one triangle are congruent to two angles of a second triangle, then the third angles of the triangles are congruent.



Properties of Congruent Triangles

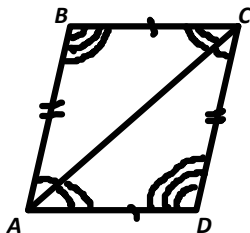
Reflexive Property - Every triangle is congruent to itself.

Symmetric Property - If $\triangle ABC \cong \triangle DEF$ then $\triangle DEF \cong \triangle ABC$.

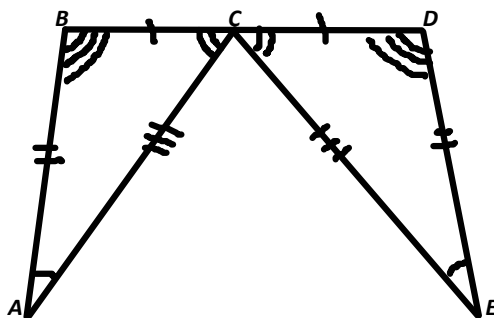
Transitive Property - If $\triangle ABC \cong \triangle DEF$ and $\triangle DEF \cong \triangle GHI$ then $\triangle ABC \cong \triangle GHI$.

1. Complete each congruence statement.

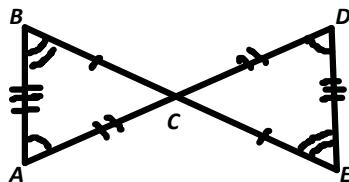
a) $\triangle ABC \cong$ _____



b) $\triangle ABC \cong$ _____



c) $\triangle ABC \cong$ _____



2. $\triangle ABC \cong \triangle DEF$

a) If $AB = 8$, $BC = 14$, $AC = 10$ and $DF = 2x - 4$, find the value of x .

b) If $m\angle A = 42^\circ$, $m\angle E = 60^\circ$ and $m\angle F = 3x + 18$, find the value of x .

3. If $\triangle ABC \cong \triangle DEF$, AB is three less than three times a number, DE is five more than a number, AC is five times a number and DF is twelve more than twice a number, find AB , AC , DE and DF .

4. Given: $ED \perp AC$

B is the midpoint of \overline{AC}

$\overline{DA} \cong \overline{DC}$

\overline{DE} bisects $\angle ADC$

Prove: $\triangle ABD \cong \triangle CBD$

Statement

1. $ED \perp AC$

B is the midpoint of \overline{AC}

$\overline{DA} \cong \overline{DC}$

\overline{DE} bisects $\angle ADC$

Reason

1. Given

