Triangles – Part 1
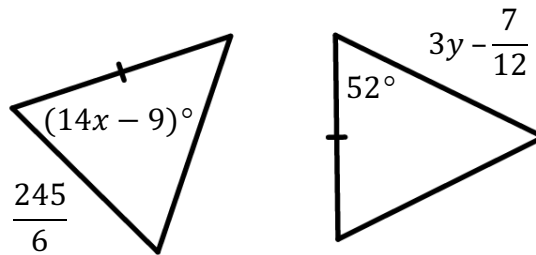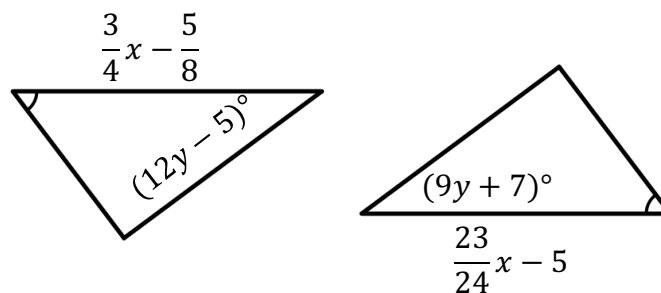**Using Triangle Congruency to Find Missing Variables**
Independent Practice

1. Consider the figures below.

   Find the value of x and y in order to prove that the two triangles are congruent by the SAS Congruence Postulate. Justify your work.
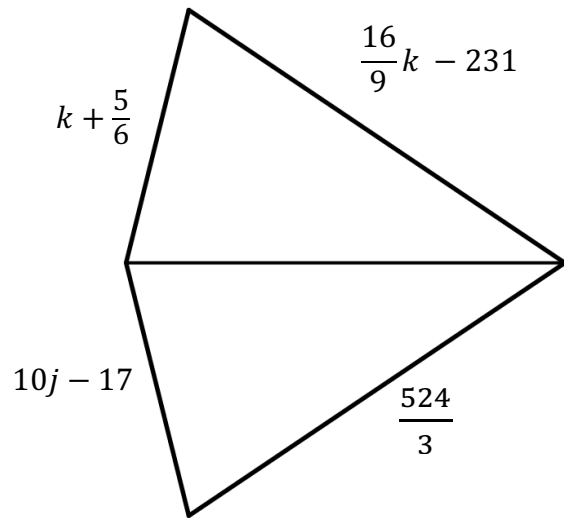
2. Consider the figures below.

   Find the value of x and y in order to prove that the two triangles are congruent using the ASA Congruence Postulate. Justify your work.
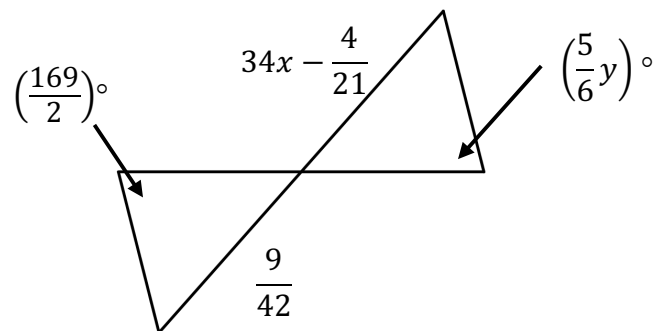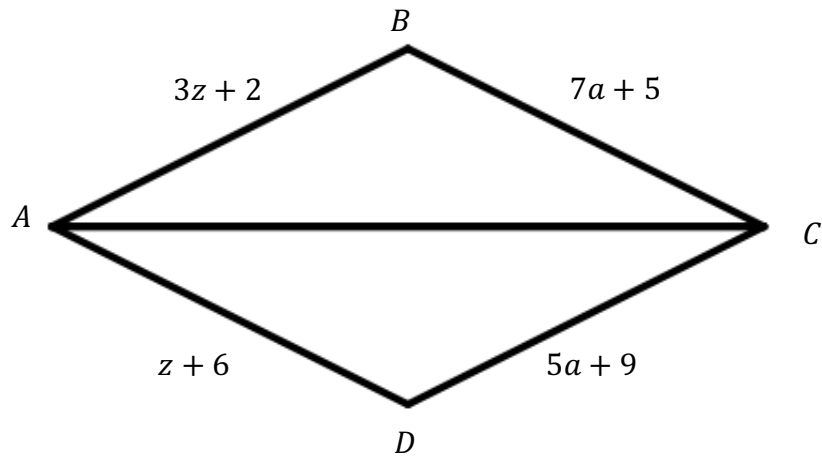
3. Consider the figure below.

$\frac{16}{9}k - 231$

$k + \frac{5}{6}$

$10j - 17$

$\frac{524}{3}$

Find the values of k and j that prove the two triangles are congruent using the SSS Congruence Postulate.

4. Consider the figure below.

$\left(\frac{169}{2}\right)^{\circ}$

$34x - \frac{4}{21}$

$\left(\frac{5}{6}y\right)^{\circ}$

$\frac{9}{42}$

Find the values of x and y that prove the two triangles are congruent using the AAS Congruence Theorem. Justify your work.

5. Consider the figure below.

B

$3z + 2$ $7a + 5$

A C

$z + 6$ $5a + 9$

D

Part A: If $\overline{AB} \cong \overline{AD}$ and $\overline{BC} \cong \overline{DC}$ then because $\overline{AC} \cong \overline{AC}$ by the

A transitive
B symmetric
C supplement
D reflexive

property of congruence, it is possible to determine that $\triangle ABC \cong \triangle ADC$

by

A AAS.
B ASA.
C SAS.
D SSS.

Part B: What are the values of z and a?