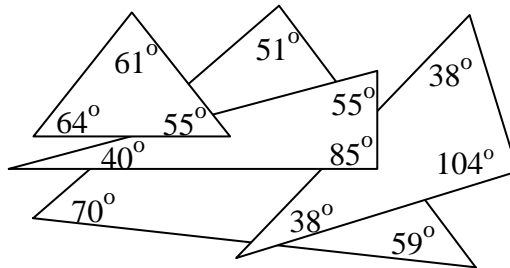


## Comparison of Inductive and Deductive Reasoning

### Inductive Reasoning Process:

*Observations:*

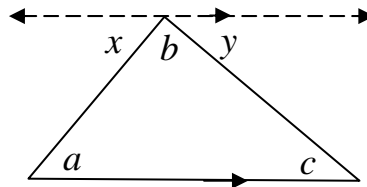


$$\begin{aligned} 64^\circ + 61^\circ + 55^\circ &= 180^\circ \\ 70^\circ + 59^\circ + 51^\circ &= 180^\circ \\ 40^\circ + 55^\circ + 85^\circ &= 180^\circ \\ 38^\circ + 38^\circ + 104^\circ &= 180^\circ \end{aligned}$$

*Generalizations:*

**Conjecture:**  $a + b + c = 180^\circ$   
for all triangles!

### Deductive Reasoning Process:



*Facts accepted as true:*

- Fact 1:**  $x + b + y = 180^\circ$  because  $x$ ,  $b$ , and  $y$  are measures of angles that form a straight angle.
- Fact 2:**  $x = a$  and  $y = c$  because alternate interior angles are congruent when parallel lines are cut by a transversal.
- Fact 3:** We can substitute equal values for equal values.

*Logical consequences:*

**Conclusion:**  $a + b + c = 180^\circ$  for any triangle.