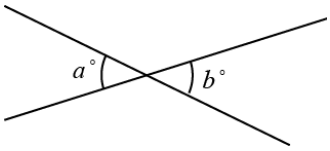
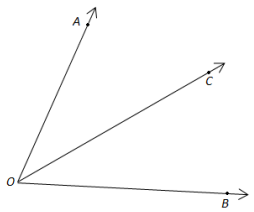
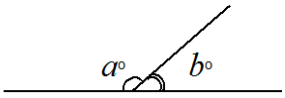
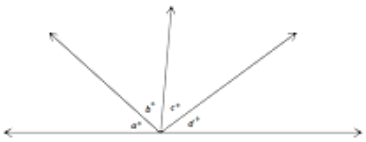
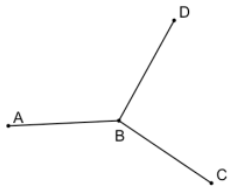
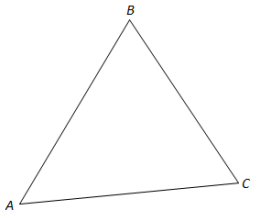
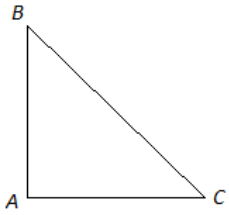
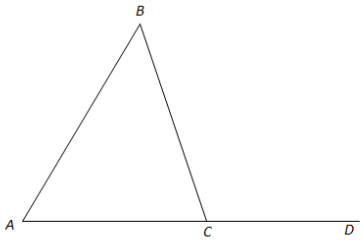
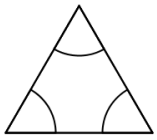
Key Facts and Discoveries from Earlier Grades

Facts (With Abbreviations Used in Grades 4–9)	Diagram/Example	How to State as a Reason in an Exercise or a Proof
Vertical angles are equal in measure. (vert. ∠s)	 $a° = b°$	"Vertical angles are equal in measure."
If C is a point in the interior of $\angle AOB$, then $m\angle AOC + m\angle COB = m\angle AOB$. (∠s add)	 $m\angle AOB = m\angle AOC + m\angle COB$	"Angle addition postulate"
Two angles that form a linear pair are supplementary. (∠s on a line)	 $a° + b° = 180$	"Linear pairs form supplementary angles."
Given a sequence of n consecutive adjacent angles whose interiors are all disjoint such that the angle formed by the first $n-1$ angles and the last angle are a linear pair, then the sum of all of the angle measures is $180°$. ($\angle s$ on a line)	 $a° + b° + c° + d° = 180$	"Consecutive adjacent angles on a line sum to $180°$."
The sum of the measures of all angles formed by three or more rays with the same vertex and whose interiors do not overlap is $360°$. (∠s at a point)	 $m\angle ABC + m\angle CBD + m\angle DBA = 360°$	"Angles at a point sum to $360°$."

Facts (With Abbreviations Used in Grades 4–9)	Diagram/Example	How to State as a Reason in an Exercise or a Proof
The sum of the 3 angle measures of any triangle is $180°$. (∠ sum of △)	 $m\angle A + m\angle B + m\angle C = 180°$	"The sum of the angle measures in a triangle is $180°$."
When one angle of a triangle is a right angle, the sum of the measures of the other two angles is $90°$. (∠ sum of rt. △)	 $m\angle A = 90°; m\angle B + m\angle C = 90°$	"Acute angles in a right triangle sum to $90°$."
The sum of each exterior angle of a triangle is the sum of the measures of the opposite interior angles, or the remote interior angles. (ext. ∠ of △)	 $m\angle BAC + m\angle ABC = m\angle BCD$	"The exterior angle of a triangle equals the sum of the two opposite interior angles."
Base angles of an isosceles triangle are equal in measure. (base ∠s of isos. △)		"Base angles of an isosceles triangle are equal in measure."
All angles in an equilateral triangle have equal measure. (equilat. △)		"All angles in an equilateral triangle have equal measure."