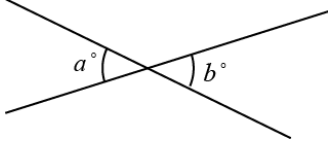
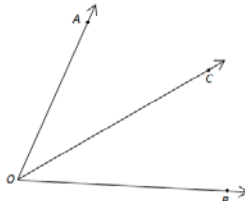
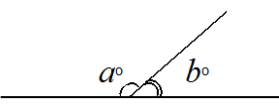
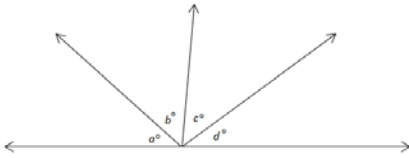
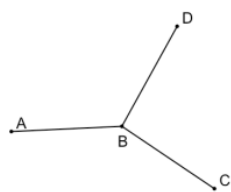
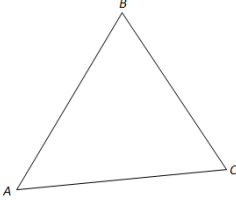
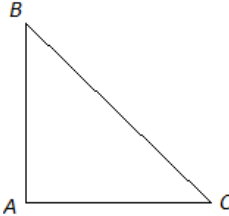
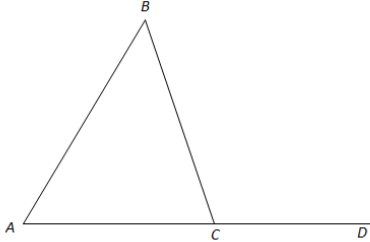

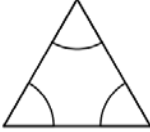




Key Facts and Discoveries from Earlier Grades

Facts (With Abbreviations Used in Grades 4–9)	Diagram/Example	How to State as a Reason in an Exercise or Proof
Vertical angles are equal in measure. (vert. $\angle$ s)	 $a = b$	“Vertical angles are equal in measure”
If $C$ is a point in the interior of $\angle AOB$ , then $m\angle AOC + m\angle COB = m\angle AOB$ . ( $\angle$ s add)	 $m\angle AOB = m\angle AOC + m\angle COB$	“Angle addition postulate”
Two angles that form a linear pair are supplementary. ( $\angle$ 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 $180^\circ$ . ( $\angle$ s on a line)	 $a + b + c + d = 180$	“Consecutive adjacent angles on a line sum to $180^\circ$ ”
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 $360^\circ$ . ( $\angle$ s at a point)	 $m\angle ABC + m\angle CBD + m\angle DBA = 360^\circ$	“Angles at a point sum to $360^\circ$ ”



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



Facts (With Abbreviations Used in Grades 4–9)	Diagram/Example	How to State as a Reason in an Exercise or Proof
<p>If two parallel lines are intersected by a transversal, then corresponding angles are equal in measure. (corr. <math>\angle</math>s, <math>\overline{AB} \parallel \overline{CD}</math>)</p>		<p>“If parallel lines are cut by a transversal, then corresponding angles are equal in measure”</p>
<p>If two lines are intersected by a transversal such that a pair of corresponding angles are equal in measure, then the lines are parallel. (corr. <math>\angle</math>s converse)</p>		<p>“If two lines are cut by a transversal such that a pair of corresponding angles are equal in measure, then the lines are parallel”</p>
<p>If two parallel lines are intersected by a transversal, then interior angles on the same side of the transversal are supplementary. (int. <math>\angle</math>s, <math>\overline{AB} \parallel \overline{CD}</math>)</p>		<p>“If parallel lines are cut by a transversal, then interior angles on the same side are supplementary”</p>
<p>If two lines are intersected by a transversal such that a pair of interior angles on the same side of the transversal are supplementary, then the lines are parallel. (int. <math>\angle</math>s converse)</p>		<p>“If two lines are cut by a transversal such that a pair of interior angles on the same side are supplementary, then the lines are parallel”</p>
<p>If two parallel lines are intersected by a transversal, then alternate interior angles are equal in measure. (alt. <math>\angle</math>s, <math>\overline{AB} \parallel \overline{CD}</math>)</p>		<p>“If parallel lines are cut by a transversal, then alternate interior angles are equal in measure”</p>
<p>If two lines are intersected by a transversal such that a pair of alternate interior angles are equal in measure, then the lines are parallel. (alt. <math>\angle</math>s converse)</p>		<p>“If two lines are cut by a transversal such that a pair of alternate interior angles are equal in measure, then the lines are parallel”</p>