

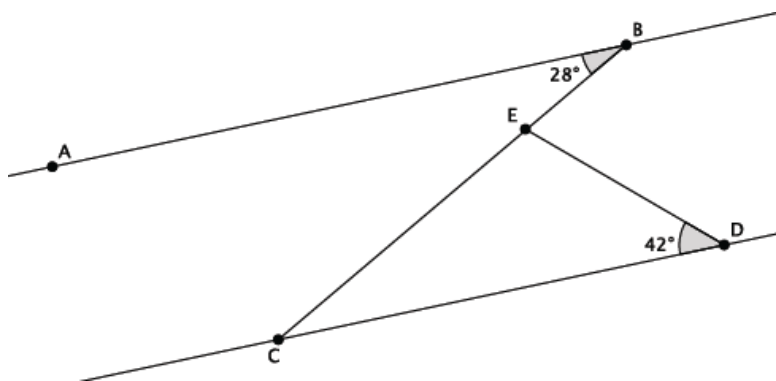
**Lesson Summary**

All triangles have a sum of measures of the interior angles equal to  $180^\circ$ .

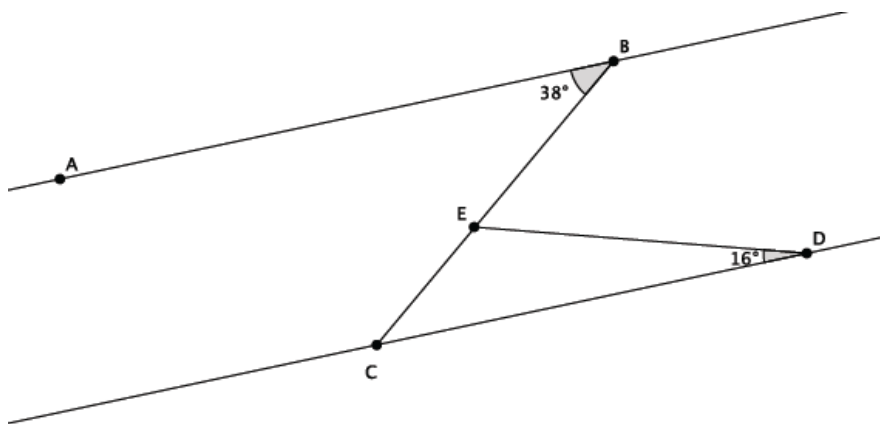
The proof that a triangle has a sum of measures of the interior angles equal to  $180^\circ$  is dependent upon the knowledge of straight angles and angle relationships of parallel lines cut by a transversal.

**Problem Set**

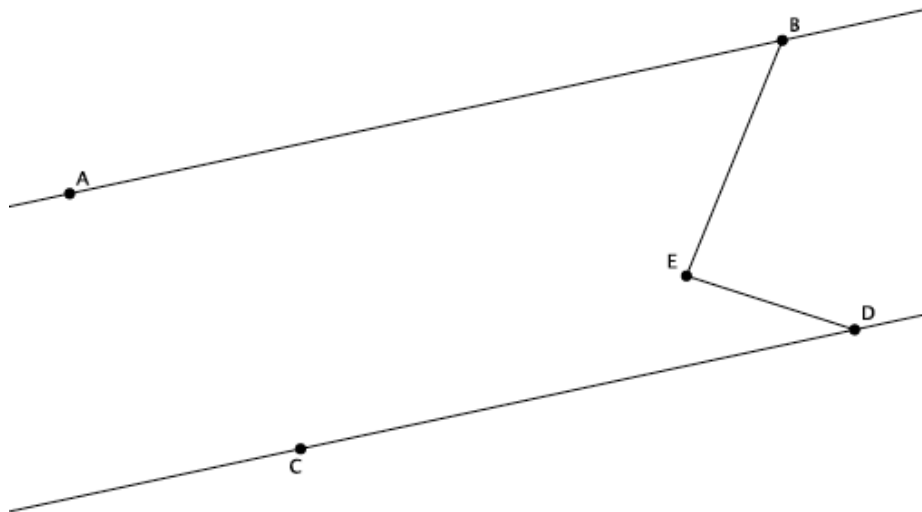
1. In the diagram below, line  $AB$  is parallel to line  $CD$ , that is,  $L_{AB} \parallel L_{CD}$ . The measure of  $\angle ABC$  is  $28^\circ$ , and the measure of  $\angle EDC$  is  $42^\circ$ . Find the measure of  $\angle CED$ . Explain why you are correct by presenting an informal argument that uses the angle sum of a triangle.



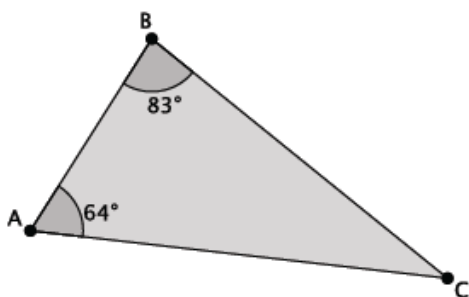
2. In the diagram below, line  $AB$  is parallel to line  $CD$ , that is,  $L_{AB} \parallel L_{CD}$ . The measure of  $\angle ABE$  is  $38^\circ$ , and the measure of  $\angle EDC$  is  $16^\circ$ . Find the measure of  $\angle BED$ . Explain why you are correct by presenting an informal argument that uses the angle sum of a triangle. (Hint: Find the measure of  $\angle CED$  first, and then use that measure to find the measure of  $\angle BED$ .)



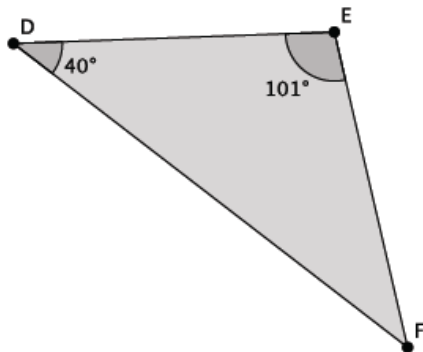
3. In the diagram below, line  $AB$  is parallel to line  $CD$ , that is,  $L_{AB} \parallel L_{CD}$ . The measure of  $\angle ABE$  is  $56^\circ$ , and the measure of  $\angle EDC$  is  $22^\circ$ . Find the measure of  $\angle BED$ . Explain why you are correct by presenting an informal argument that uses the angle sum of a triangle. (Hint: Extend the segment  $BE$  so that it intersects line  $CD$ .)



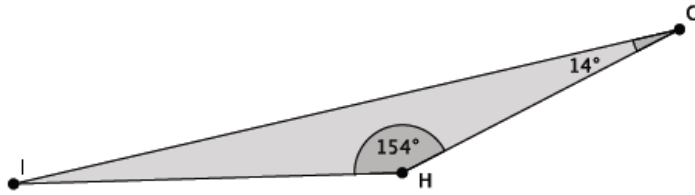
4. What is the measure of  $\angle ACB$ ?



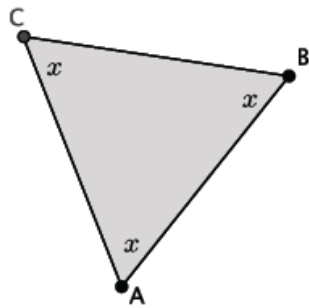
5. What is the measure of  $\angle EFD$ ?



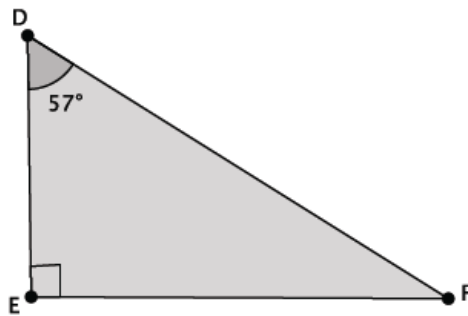
6. What is the measure of  $\angle HIG$ ?



7. What is the measure of  $\angle ABC$ ?



8. Triangle  $DEF$  is a right triangle. What is the measure of  $\angle EFD$ ?



9. In the diagram below, Lines  $L_1$  and  $L_2$  are parallel. Transversals  $r$  and  $s$  intersect both lines at the points shown below. Determine the measure of  $\angle JMK$ . Explain how you know you are correct.

