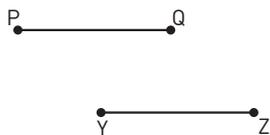
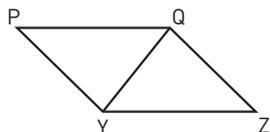


**YOU & MATHS Prove it!** Write a proof for the following statement.  
 If  $PQ$  and  $YZ$  are on parallel and non-coincident lines, and  $PQ \cong ZY$ , then  $PY \cong QZ$ .



Draw segment  $QY$  and consider angles  $\widehat{PQY}$  and  $\widehat{QYZ}$ .



The angles are congruent because they are alternate interior angles.

Draw segments  $PY$  and  $QZ$  and consider triangles  $PQY$  and  $QYZ$ . These are congruent by the first criterion of congruency, because sides  $PQ$  and  $YZ$  are congruent by hypothesis, side  $YQ$  is in common, and the angles  $\widehat{PQY}$  and  $\widehat{QYZ}$  are congruent for the step above. This implies that  $QZ$  is congruent to  $PY$ .