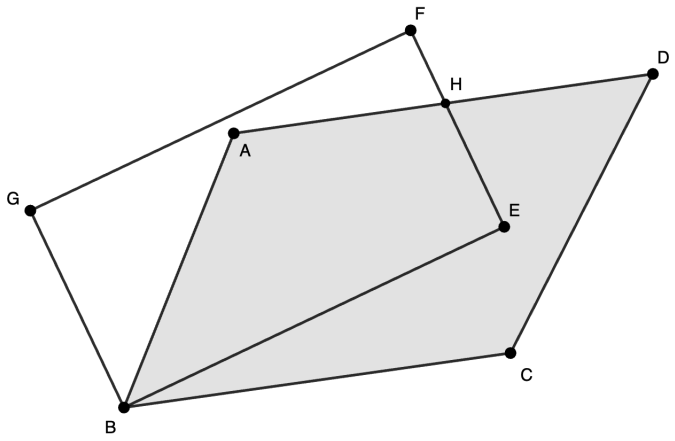
As shown in the figure below, $ABCD$ is a parallelogram and $BEFG$ is a rectangle. The intersection of AD and EF is shown by H. If $\angle ABE = 41°$ and $\angle DHE = 69°$, find the measure of $\angle BCD$.[1]



[1] Hiroshima Prefecture

Solution

Answer : 118°

Proof: $\angle AHE = 180° - \angle DHE = 180° - 69° = 111°$. Now focusing on the interior angles of quadrilateral $ABEH$, $\angle A + 41° + 90° + 111° = 360°$, giving us $\angle A = 118°$. Since opposite angles of a parallelogram are congruent, $\angle \mathbf{BCD} = \angle \mathbf{A} = \mathbf{118}°$.