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## example of fibre product

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Let  $G$ ,  $G'$ , and  $H$  be groups, and suppose we have homomorphisms  $f : G \rightarrow H$  and  $f' : G' \rightarrow H$ . Then we can construct the fibre product  $G \times_H G'$ . It is the following group:

$$\{(g, g') \in G \times G' \text{ such that } f(g) = f'(g')\}.$$

Observe that since  $f$  and  $f'$  are homomorphisms, it is closed under the group operations.

Note also that the fibre product depends on the maps  $f$  and  $F'$ , although the notation does not reflect this.