
Algorithm 1: Buchberger's Algorithm

Input: $F = (f_1, \dots, f_s), \geq$ (monomial ordering)

Output: Gröbner basis G of F w.r.t. $\geq$ monomial ordering

```
1  $G \leftarrow F$ 
2 repeat
3    $G' \leftarrow G$ 
4   for  $\{p, q\} \subseteq G', p \neq q$  do
5      $r \leftarrow \overline{S_{\geq}(p, q)}^{(G', \geq)}$ 
6     if  $r \neq 0$  then
7        $G \leftarrow G \cup \{r\}$ 
8 until  $G \neq G'$ 
9 return  $G$ 
```
