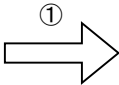


$z = \text{matmul}(x, w)$



②
 $x' = \text{split}(x, \text{sharding_ratios}[\text{rank}])$
 $z' = \text{matmul}(x', w)$
 $z = \text{het_all_gather}(z', \text{rank})$
③