

## Question

a) coldmisses :  $2 * (4096/16) = 512$

as every 16th iteration will miss on the load to X and to Y, for the first time

conflictmisses :  $4096 + (15/16) * 4096 = 4096 + 3840 = 7936$

as every store to X will miss because it was displaced by the previous load to Y, and as every load to the remaining 15 elements of Y in a line will miss because they were displaced by the previous store to X

total :  $512 + 7936 = 8448$  misses

So: missrate :  $8448/12288 = 0.6875$  (68.75%) as there are  $3 * 4096 = 12288$  memory references in the loop

b) coldmisses :  $2 * (4096/16) = 512$  as every 16th iteration will miss on the load to X and on the load to Y

conflict misses: 0

total: 512 misses

So: missrate:  $512/12288 = 0.0417$  (4.17%)

c) coldmisses:  $4096 / (16 * z)$

as every  $16*z$ 'th iteration will miss on the load to

conflictmisses :  $2 * 4096 = 8192$

as every load to Y will cause a conflict with the just-loaded line of X and every store to X will cause a conflict with the just-loaded line of Y