

Practice Problem 2.15 (solution page 184)

Using only bit-level and logical operations, write a C expression that is equivalent to `x == y`. In other words, it will return 1 when `x` and `y` are equal and 0 otherwise.

$!(x \neq y)$   
nonzero if  $x$  and  $y$  differ at any bit

	0	1
0	0	1
1	1	0

Alternatively:

$!(x \& (\sim y))$  Only works for  $y \neq 0$  (always true if  $y = 0$ )

$!(\sim x \& y)$  Only works for  $x \neq 0$  (always true if  $x = 0$ )

So need to combine them,

$![(x \& (\sim y)) | (\sim x \& y)] = !(x \wedge y)$