```
/*QUIZ 18 - ATTEMPT TO LOCATE AN INT INSIDE A GIVEN INT ARRAY IN O(1)*/

/*the idea is to use xor operation with (num, arr[i]):
If you XOR an integer with a bitmask where all the bits are 0 except for the bit
you want to clear (which is set to 1), it will effectively clear the specified bit.
so xoring a number with itself will result in 0.

*/

#include <stddef.h> /*size_t*/
#include <stdio.h> /*size_t*/

int FindNumInArrayEfficiently (size_t num, size_t *arr, size_t len)
{
      size_t i = 0;
      size_t is_found = 0xFFFFFFFFFFFFFFFF;
      while(i < len)
      {
            is_found *= (arr[i] ^ num);
            ++i;
      }
      return !is_found; /*if 1 - found, else - not found*/
}

int main()
{
      size_t num_to_find = 12;
      size_t arr[10] = {1,2,3,4,5,6,7,8,9,10};
      size_t is_found = FindNumInArrayEfficiently (num_to_find, arr, 10);
      if(is_found)
      {
            printf("num %ld is found\n", num_to_find);
            return 0;
      }
      printf("num %ld is not found\n", num_to_find);
      return 0;
}
```