



You are working on problem set:
[Homework 2](#) ([Pause](#))

✓ bitmask2

Language/Type: **C** [C bitwise operators bit manipulation](#)

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Give a C expression to construct each of the following masks for a 32-bit unsigned integer.

.
. .
.

all bits on

- a. ☒ ~ 0
 - b. ☐ $(1 \ll 31)$
 - c. ☐ $1 \ll n$
 - d. ☐ $(\sim 0 \ll (32 - k))$
 - e. ☐ $(1 \ll n) - 1$
- (order shuffled)

one bit on in position n, all others off

- a. ☐ $(1 \ll 31)$
 - b. ☒ $1 \ll n$
 - c. ☐ $(\sim 0 \ll (32 - k))$
 - d. ☐ $(1 \ll n) - 1$
 - e. ☐ ~ 0
- (order shuffled)

n least significant bits on, all others off

- a. ☐ $(\sim 0 \ll (32 - k))$
 - b. ☐ $(1 \ll 31)$
 - c. ☒ $(1 \ll n) - 1$
 - d. ☐ $1 \ll n$
 - e. ☐ ~ 0
- (order shuffled)

most significant bit on, all others off

- a. ☐ $1 \ll n$
- b. ☐ ~ 0
- c. ☒ $(1 \ll 31)$
- d. ☐ $(1 \ll n) - 1$
- e. ☐ $(\sim 0 \ll (32 - k))$
(order shuffled)

k most significant bits on, all others off

- a. ☐ $(1 \ll n) - 1$
- b. ☐ ~ 0
- c. ☒ $(\sim 0 \ll (32 - k))$
- d. ☐ $1 \ll n$
- e. ☐ $(1 \ll 31)$
(order shuffled)



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✓ You passed 5 of 5 tests.



#	question	your answer	result
1	all bits on	~ 0	✓ pass
2	one bit on in position n, all others off	$1 \ll n$	✓ pass
3	n least significant bits on, all others off	$(1 \ll n) - 1$	✓ pass
4	most significant bit on, all others off	$(1 \ll 31)$	✓ pass
5	k most significant bits on, all others off	$(\sim 0 \ll (32 - k))$	✓ pass



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