Hard Questions

1. Which expression is **equivalent** to `!(A && B)` ?

   A) `!A && !B`

   B) `!A || !B`

   C) `A || B`

   D) `A && !B`

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2. What is the output value for `1<<5` ?

   A) $2^5 - 2^1$

   B) $2^6 - 2^5$

   C) 2^{5-1}

   D) 2^4

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3. What's the value of count for the following code snippet

```
count = 0
for i from 1 to 6:
    if i % 3 == 0:
        continue
    for j from i to 6:
        if j % 5 == 0:
            break
        count = count + 1
    end for
end for
```

Options:

A) 8

B) 4

C) 15

D) 14

---

4. How many iterations occurs in the loop

```
LIMIT_LOOP(limit, step):
    WHILE step < limit:
        limit ← |limit / step|
        step ← step + 1
    RETURN limit

Limit = 100
step = 2
LIMIT_LOOP(Limit, step)
```

Options:
A) 3
B) 5
C) 7
D) 9

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5. What's wrong in the following binary search method (give the specific line number)

```
1.  BINARY_SEARCH(A, start, last, key):
2.      WHILE start ≤ last:
3.          mid ← start + |(last − start) / 2|
4.          IF A[mid] == key:
5.              RETURN false
6.          ELSE IF A[mid] < key:
7.              start ← mid + 1
8.          ELSE:
9.              last ← mid − 1
10.     RETURN true
```

A) line no 5 and 10
B) line no 3
C) line no 6
D) line no 7 and 9