

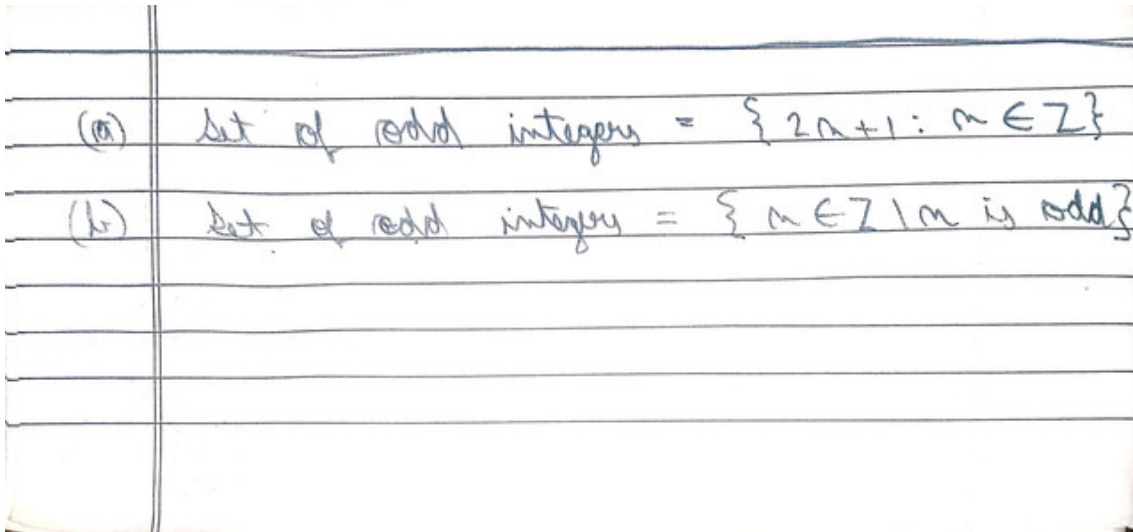
# CS 350 SPRING 2023

## HW1

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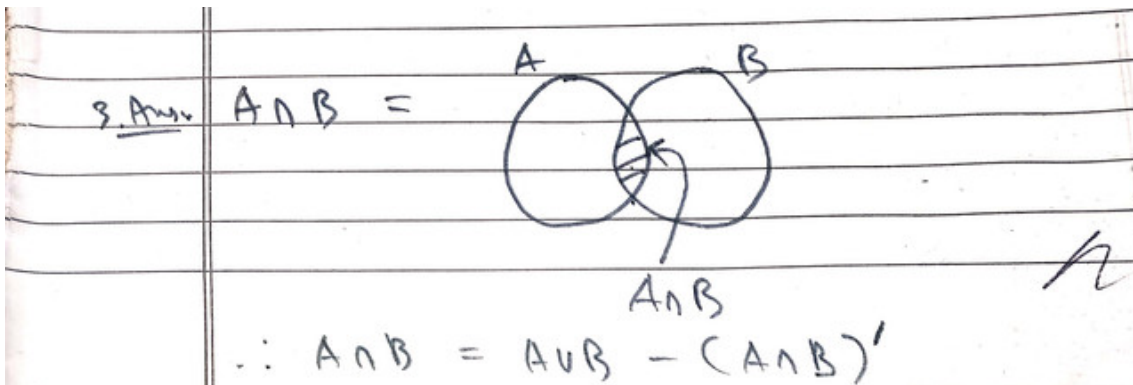
BLAZER ID: SSRINIVA

1.



2.  $\mathbb{Z}$  (all integers)

3.



4.  $S = \{1, 2, a, b\}$

5. (a)  $P(S) = \{\{\}, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, \{a, b, c\}\}$

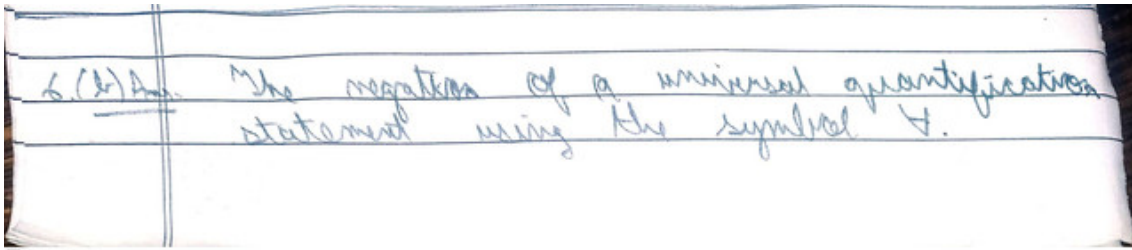
(b)  $2^{26} = 67,108,864$  subsets

(c) Number of subsets of a set with 10 elements =  $2^{10}(1/1000) = 1000$  (approximately)

To calculate 1 million subsets =  $1000(10^6) = 10^9$  = Approximately 1 billion subsets.

6. (a) Not all tables have 4 legs

(b)



7.

```
def factorial(number: int) -> int:
    assert number >= 0, "number must be nonnegative"
    if number == 0:
        return 1
    else:
        return number * factorial(number - 1)
```

Insert this text in your homework and digitally sign: I pledge to uphold the honour code of this course, as outlined on the syllabus and in the UAB Academic Integrity Code. I am aware that there is no collaboration allowed on homework and that outside materials (anything except the textbook) are not allowed in the solution of homework. Signature: