CS 350 SPRING 2023

HW1

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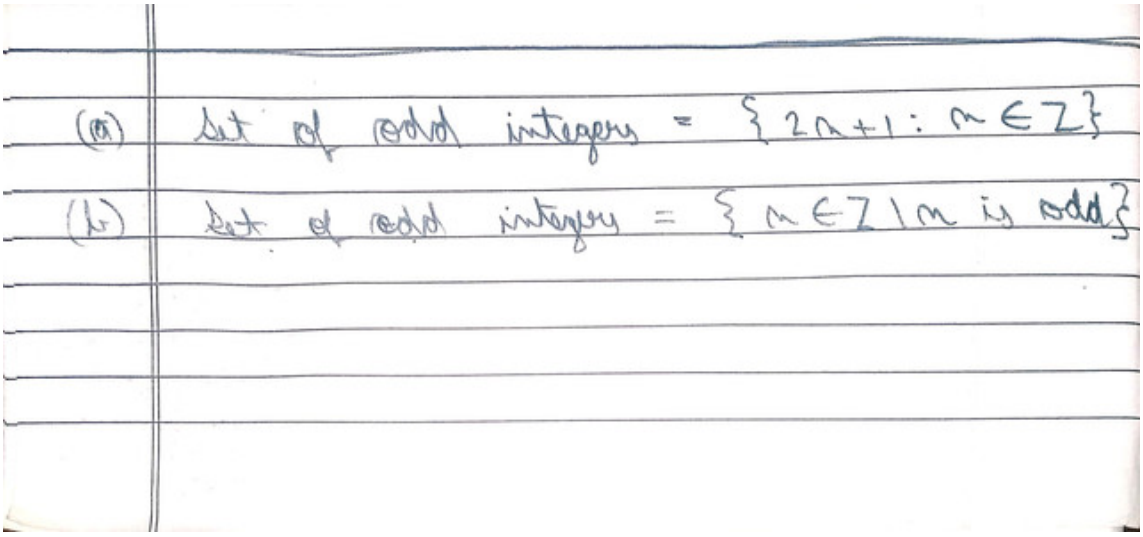
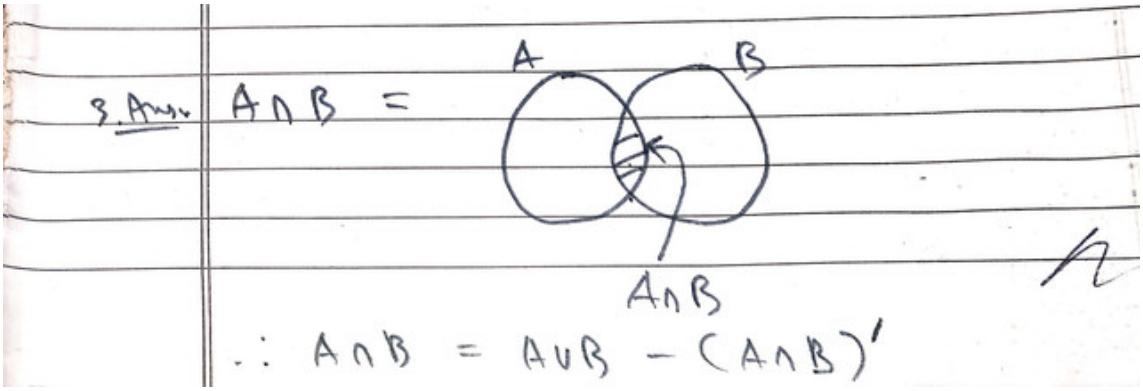
1.



2. 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}}

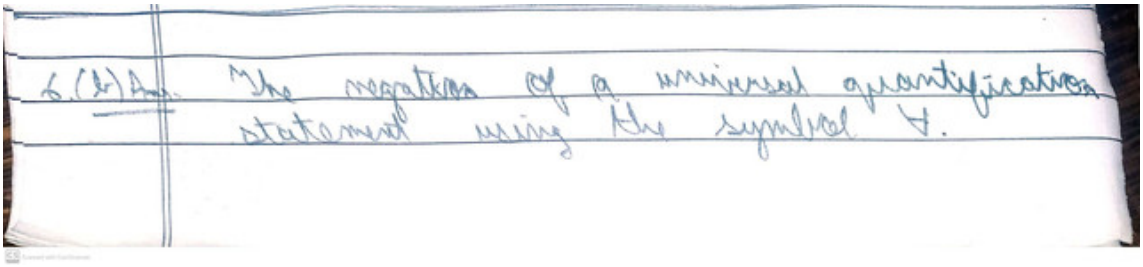
(b) 2^26 = 67,108,864 subsets

(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: Shreyas Srinivasa