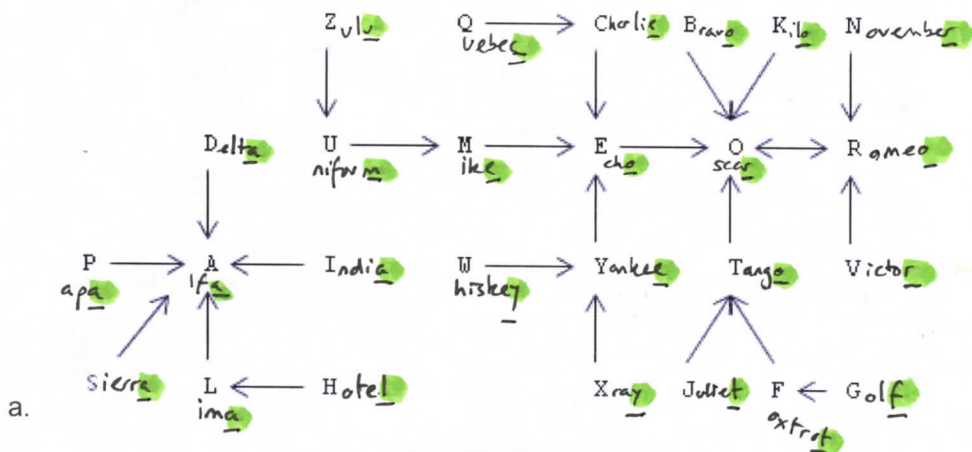


# Graph Theory

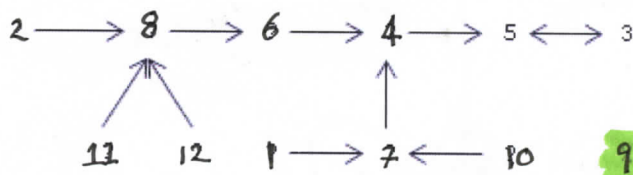


A ↻

a.

What does E stand for?

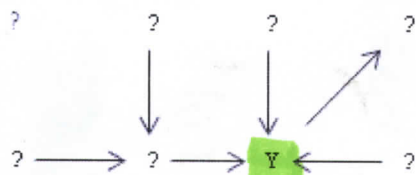
**ECHO**



b.

What word corresponds to X?

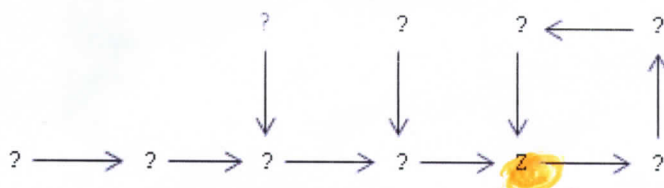
**SEPTEMBER**



c.

What word corresponds to Y?

**URANUS**



d.

What word corresponds to Z?

**EIGHT**



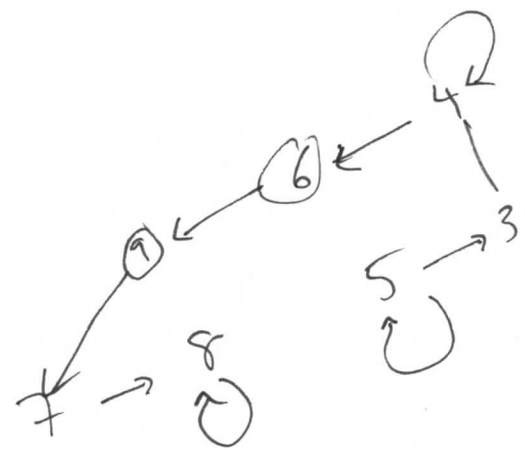
1  
4  
9  
16  
25  
36  
64  
81  
100  
121  
144  
169

5 → 3  
↪

5 ↔ 3

e ↔ c

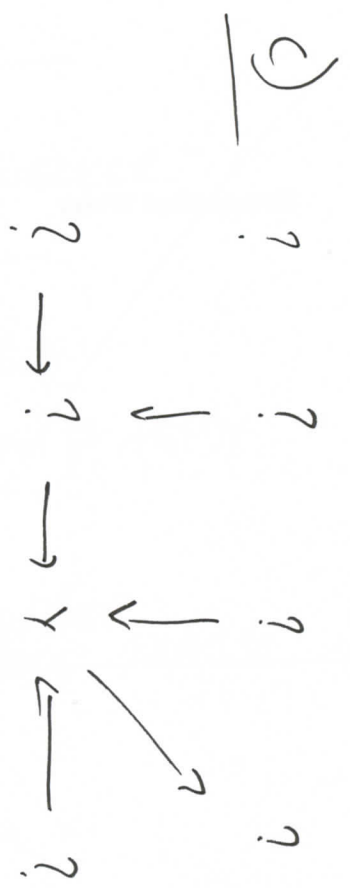
three → two  
eight → one



January	JANUARY	7
February	FEBRUARY	8
March	MARCH	5
April	APRIL	5
May	MAY	3
June	JUNE	4
July	JULY	4
August	AUGUST	6
September	SEPTEMBER	9
October	OCTOBER	7
November	NOVEMBER	8
December	DECEMBER	8

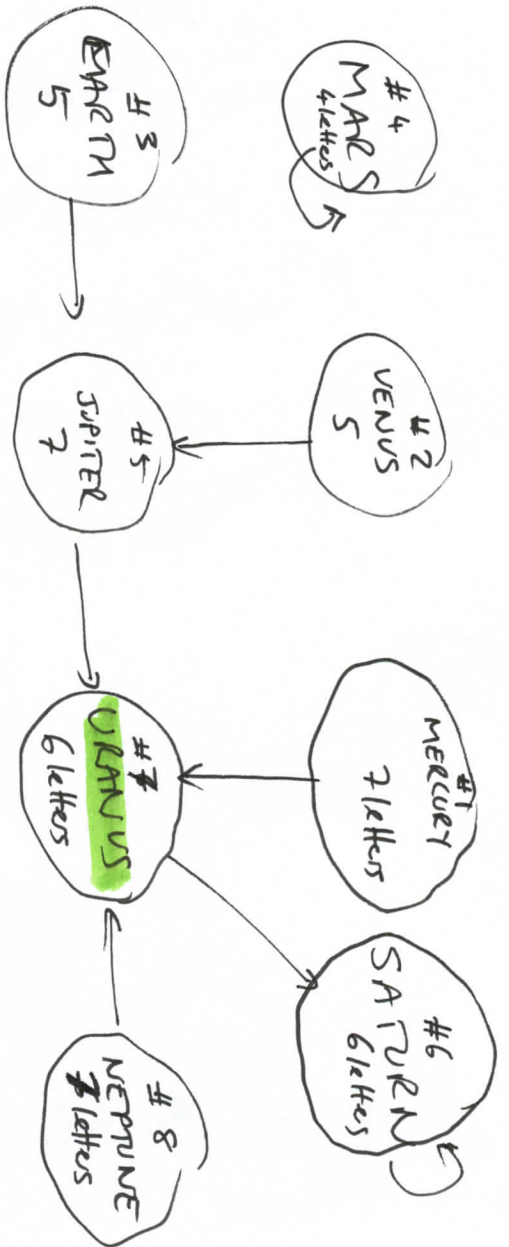
J F M A S O N D  
J M A  
J

# GRAPH THEORY



- 1 MERCURY 7
- 2 VENUS 5
- 3 EARTH 5
- 4 MARS 4
- 5 JUPITER 7
- 6 SATURN 6
- ~~7 URANUS 6~~
- ~~8 NEPTUNE 7~~

43



CREST

1 WHERE

2 SUM

3 ALGEBRAIC

4 MANIFOLD AGREEMENT

5 LOOTER

6 MESSAGE

7 GRAPH THEORY 7

8 WORDSEARCH 8

9 REGISTRATION 9

10 CROSSWORD 10

11 CIPHER 11

Answers.

1 \_\_\_\_\_

2 xiv

3 KRONECKER

4 \_\_\_\_\_

5 BILBO

6 HXRM SAEPY

7 ~~TREASURER  
DHIVETI RAJJE~~

8 DUCK

9 PALM

10 \_\_\_\_\_

① ?

② xiv ③

③ kroncker ④

④ ?

⑤ BILBO x ⑥

⑥ 9

⑦ 8

⑧ 4

⑨ 4

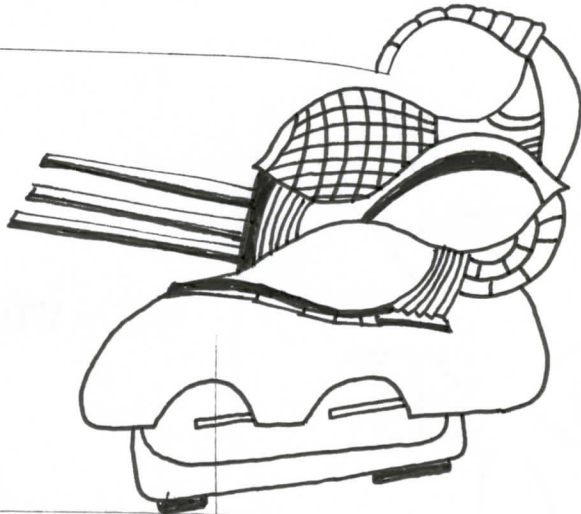
⑩ \_\_\_\_\_



105 characters

$3 \times 5 \times 7$

105 10



1	two	3	one	3	ten	3	zero	ten	fiftyone
2	four		three	5	eleven	6	one	nine	two
3	six	3	five	4	twelve	6	two	eight	three
4	eight		seven	5	thirteen	8	three	seven	four
5	<del>ten</del>		nine	4	fourteen	8	four	six	five
6	twelve		eleven	6	fifteen	7	five	five	six
7	fourteen		thirteen	8	sixteen	7	six	four	seven
8	sixteen		fifteen	7	seventeen	9	seven	three	eight
9	eighteen		seventeen	9	eighteen	8	eight	two	nine
10	twenty		nineteen	8	nineteen	8	nine	one	sixty

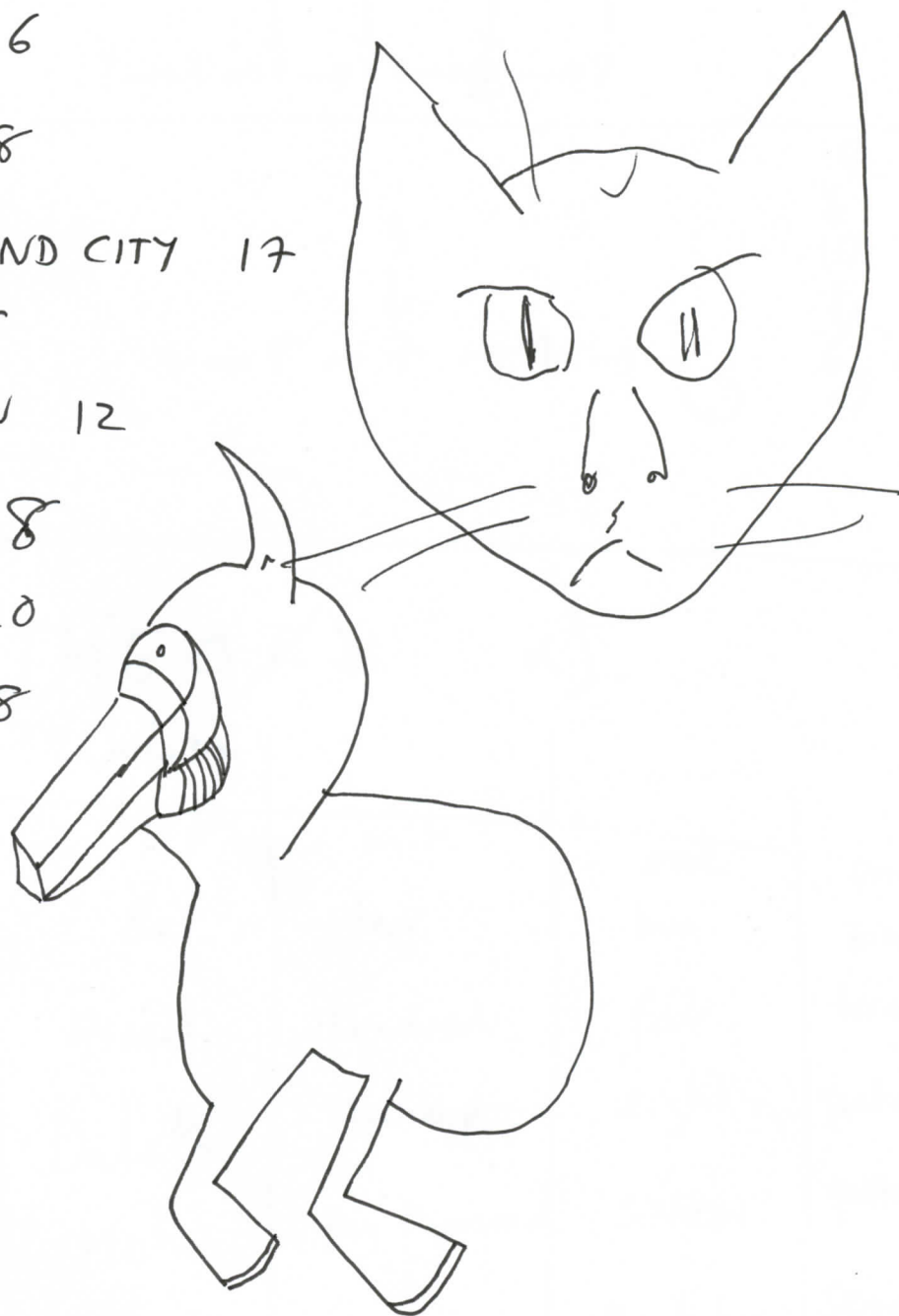
1 → 3 → 4 → 5  
←

one  
two  
three

ph theory d)

- 1 BAKER LOO 8
- 2 CENTRAL 7
- 3 CIRCLE 6
- 4 DISTRICT 8
- 5 HAMMERSMITH AND CITY 17
- 6 JUBILEE 7
- 7 METROPOLITAN 12
- 8 NORTHERN 8
- 9 PICCADILLY 10
- 10 VICTORIA 8

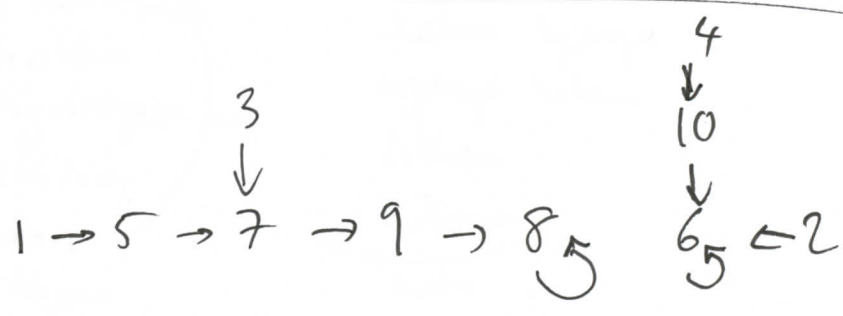
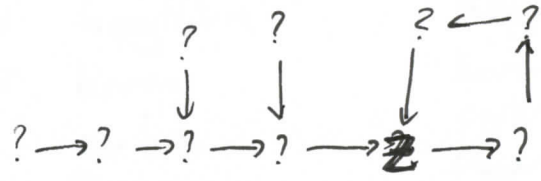
- 1 ALFA
- 2 BRAVO
- 3 CHARLIE
- 4 DELTA
- 5 ECHO





graph theory (d)

1	3	2
2	1	7
3	4	1
4	1	8
5	5	2
6	9	8
7	2	1
8	6	8
9	5	2
10	3	8



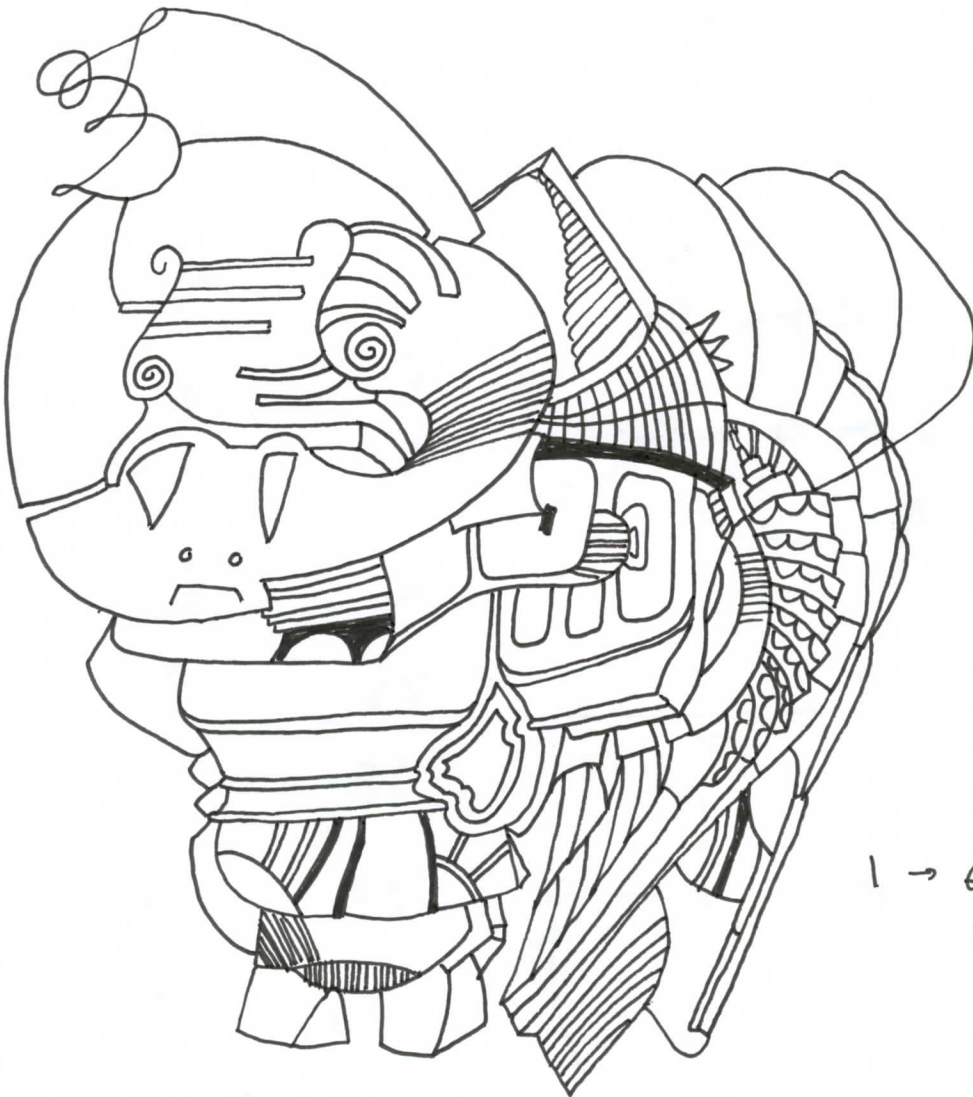
GRAPH THEORY d).

Sikh	Judaism			
1 Nanak	Aleph	unit	one	unary
2 Angad	Bet	ten	two	binary
3 Amar Das	Gimel	hundred	four	ternary
4 Ram Das	Daleth	thousand	eight	quaternary
5 Arjan Dev ji	Heh	ten thousand	sixteen	quinary
6 Hargo Sind	Vav		thirty two	senary
7 Har Rai Ji	Zayin		sixty four	septenary
8 Har Krishan	Het			octonary
9 Teg Bahadur	Tet			nonary
10 Gobind Singh	Yud.			decary

one  
 half  
 third —  
 quarter  
 fifth —  
 sixth —  
 seventh  
 eighth  
 ninth —  
 tenth —

by alphabet  
 1 beryllium  
 2 boron  
 3 carbon  
 4 fluorine  
 5 helium  
 6 hydrogen  
 7 lithium  
 8 neon  
 9 nitrogen  
 10 oxygen

by alphabetical  
 Beryllium  
 boron  
 carbon  
 fluorine  
 helium hydrogen  
 hydrogen helium  
 lithium  
 nitrogen  
 neon  
 oxygen



- 1 binary
- 2 ternary
- 3 quaternary
- 4 quinary
- 5 senary
- 6 septenary
- 7 octenary
- 8 novenary
- 9 denary
- 10 undenary

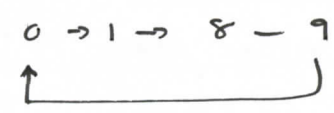
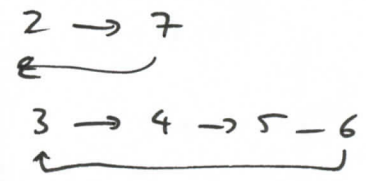
1 → 6 → 9

8  
6  
8

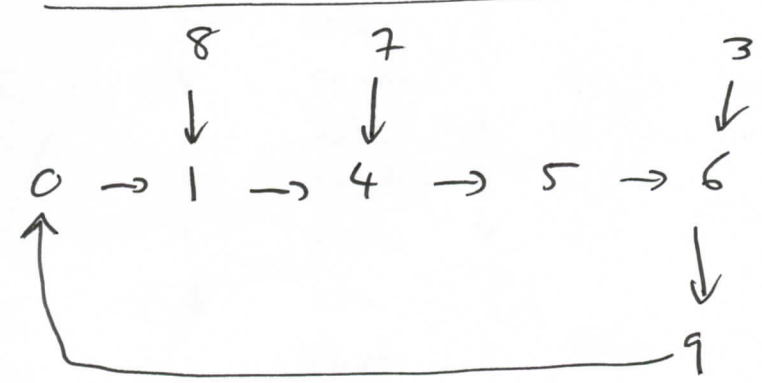
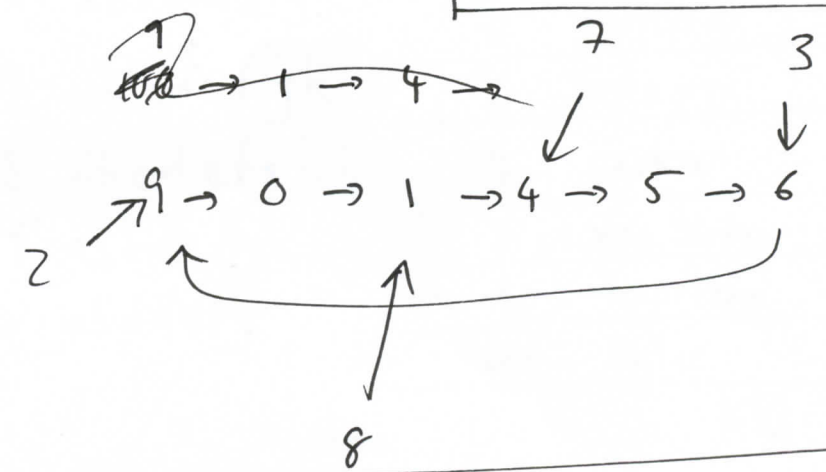
	Fibonacci	square
1	1	1
2	1	4
3	2	9
4	3	16
5	5	25
6	8	36
7	13	49
8		64
9		81
10		100

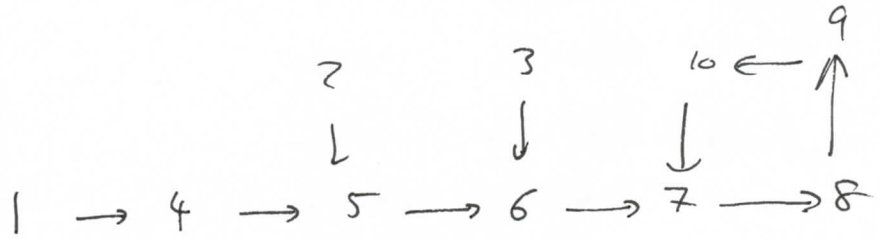
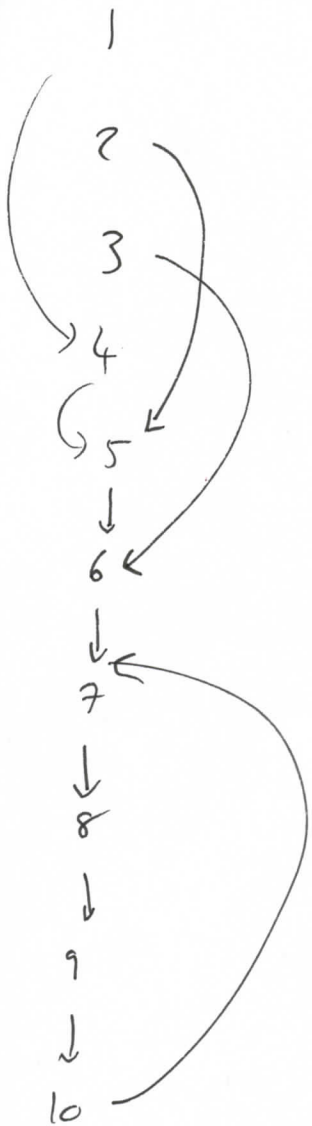
	cube
1	1
2	8
3	27
4	64
5	125
6	216
7	343
8	512
9	729
10	1000

graph theory  
 (d)



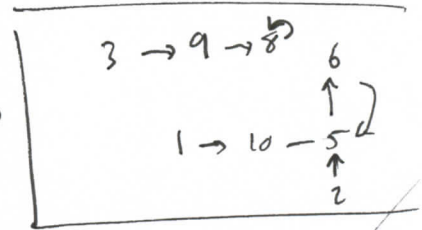
∅	1
1	4
2	9
3	16
4	25
5	36
6	49
7	64
8	81
9	100





- 1 ab cd
- 2 abcde
- 3 abcdef
- 4 abcde
- 5 abcdef
- 6 abcdefg
- 7 abcdefgh
- 8 abcdefghi
- 9 abcdefghij
- 10 abcdefg

OR NO



1	washington
2	adams
3	jefferson
4	madison
5	monroe
6	adams
7	jackson
8	van buren
9	harrison
10	tyler



one  
two  
three  
four  
five  
six  
seven  
eight  
nine  
ten

I  
II  
III  
IV  
V  
VI  
VII  
VIII  
IX  
X

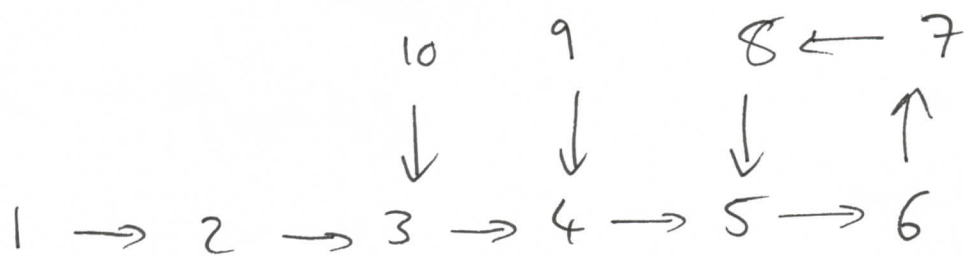
3  
4  
5  
5  
4  
5  
6

alpha  
beta  
gamma  
delta  
epsilon  
zeta  
eta  
theta  
iota  
kappa

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

5  
5  
5  
5

atf alfa  
bravo  
charlie  
delta  
echo  
foxtrot  
golf  
hotel  
india  
juliett



1	ab	2	element 1	1	that length
2	abc	3	2	<del>2</del>	that length
3	abcd	4	3	2	that length
4	abcde	5	4	2	that length
5	abcdef	6	5	1	
6	abcdefg	7	6	1	
7	abcdefgh	8	7	1	
8	abcde	5			
9	abcd	4			
10	abc	3			

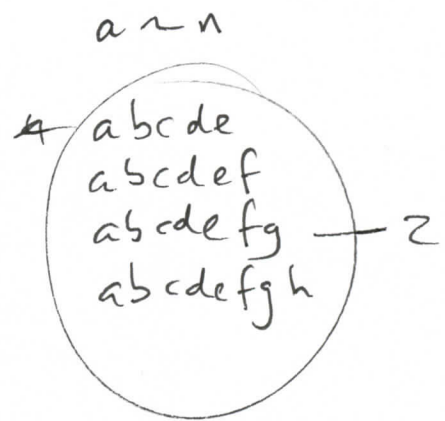
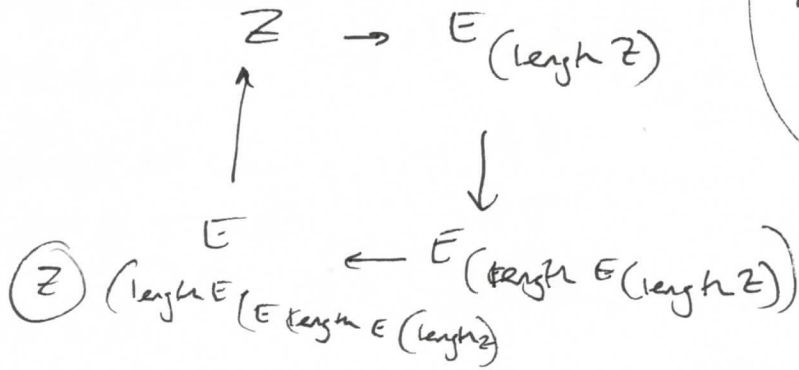
set of 10 things. 7 different lengths

4 different lengths

3 lengths that are pairs

$$E_n \rightarrow E_{(\text{length } E_n)}$$

Z

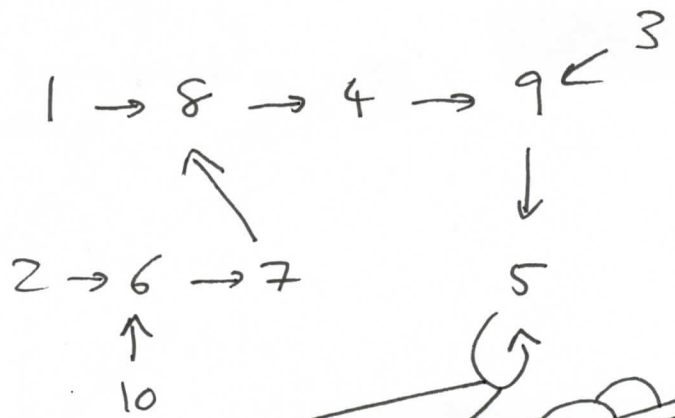


$$\begin{matrix} \text{length} \\ n \end{matrix} \rightarrow E(n)$$



- ~~0 1 2~~
- 1 abcdefg
  - 2 abcdefghij
  - 3 a
  - 4
  - 5 abc
  - 6
  - 7 z abcde
  - 8 abcdefg
  - 9 abcdefgh
  - 10 abcdefgh

1	ACTINIUM	AC
2	SILVER	AG
3	ALUMINIUM	AL
4	AMERICIUM	AM
5	ARGON X	AR
6	ARSENIC	AS
7	ASTATINE	AT
8	GOLD	AU
9	BORON	B
10	BARIUM	BA



- 1 hydrogen ✓
- 2 helium ✓
- 3 lithium ✓
- 4 beryllium ✓
- 5 boron ✓
- 6 carbon ✓
- 7 nitrogen ✓
- 8 oxygen ✓
- 9 fluorine ✓
- 10 Neon ✓

