APPLICATION OF L.C.M

Qn. Two bells ring at the intervals of 30 minutes and 40 minutes respectively. After how many minutes do the two bells ring at the same time?

2	30	40
2	15	20
2	15	10
3	15	5
5	5	1
	1	1

$(2 \times 2) \times (2 \times 3) \times 5$ minutes

$4 \times 6 \times 5$ minutes

4×30 minutes

120 minutes.

THE ROMAN NUMERALS

HINDU	ROMAN
10	X
20	XX
30	XXX
40	XL
50	L
60	LX
70	LXX
80	LXXX

1 → I
2 → II
3 → III
4 → IV
5 → V
6 → VI
7 → VII
8 → VIII
9 → IX
900 → CM

HINDU	ROMAN
100	C
200	CC
300	CCC
400	CD
500	D
600	DC
700	DCC
800	DCCC

CONSECUTIVE NUMBERS

The sum of three consecutive odd numbers is 45. If the first number is y, find the numbers.

1st	2nd	3rd	Sum
y	y+2	y+4	45

$y+y+2+y+4 = 45$

$y+y+y+2+4 = 45$

$3y+6 = 45$

$3y+6-6 = 45-6$

$3y = 45-6$

$\frac{3y}{3} = \frac{39}{3}$

$y = 13$

1st no = 13

$2^{nd} = y+2$

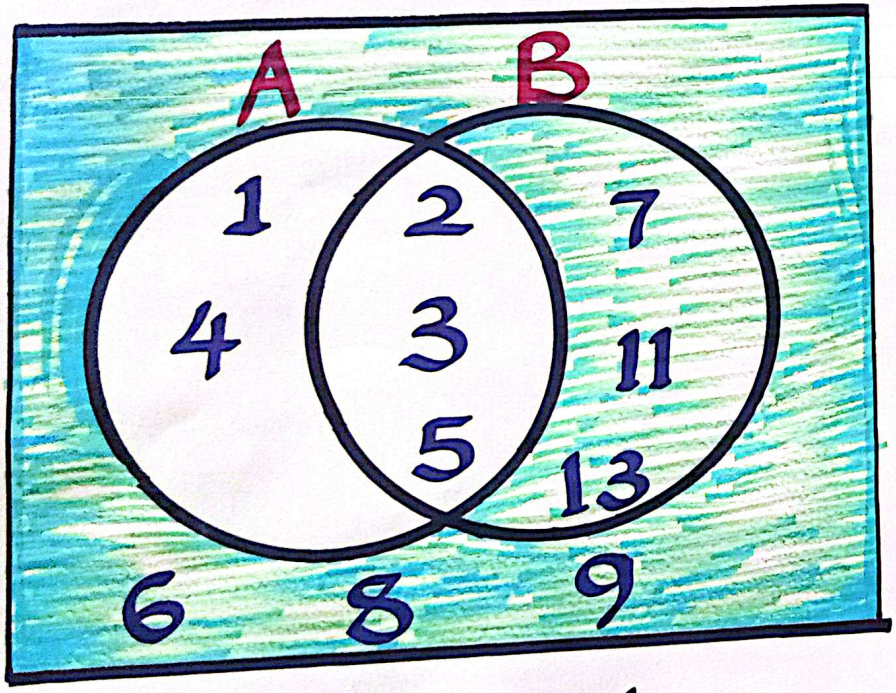
$2nd = 13+2$

$2nd = 15$

3^{rd}

Complement of a set

Complement of set A or A' are the members of universal set but not found in set A.



$A' = \{6, 7, 8, 9, 11, 13\}$.

$B' = \{1, 4, 6, 8, 9\}$

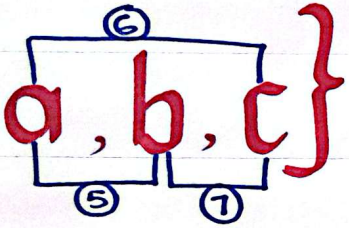
$(A \cup B)' = \{6, 8, 9\}$

Qn: Use the diagram above to list members of set $(A \cap B)'$.

Subsets and proper subsets

If set $A=\{a, b, c\}$, list down all the proper subsets of set A.

$A=\{a, b, c\}$



Proper subsets of set A

$\{\}, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}$.

2. List down all the subsets of $L=\{2, 3\}$

Include the main set

Subsets of set L

$\{\}, \{2\}, \{3\}$ and $\{2, 3\}$

Number of elements in a set.

1. Given that set P has 31 proper subsets, find the number of elements in set A / n(A).

$n(\subset) = 31$

$2^n - 1 = 31$

$2^n - 1 + 1 = 31 + 1$

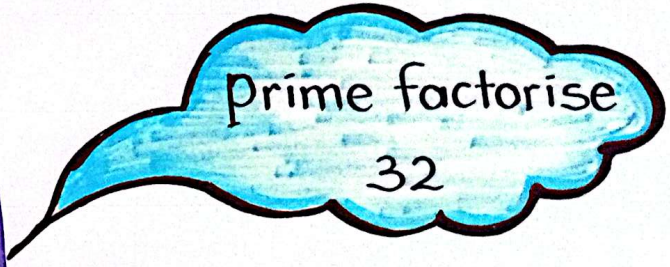
$2^n = 32$

$2^n = 2^5$

$\therefore n = 5$

$n(A) = 5$

2	32
2	16
2	8
2	4
2	2
	1

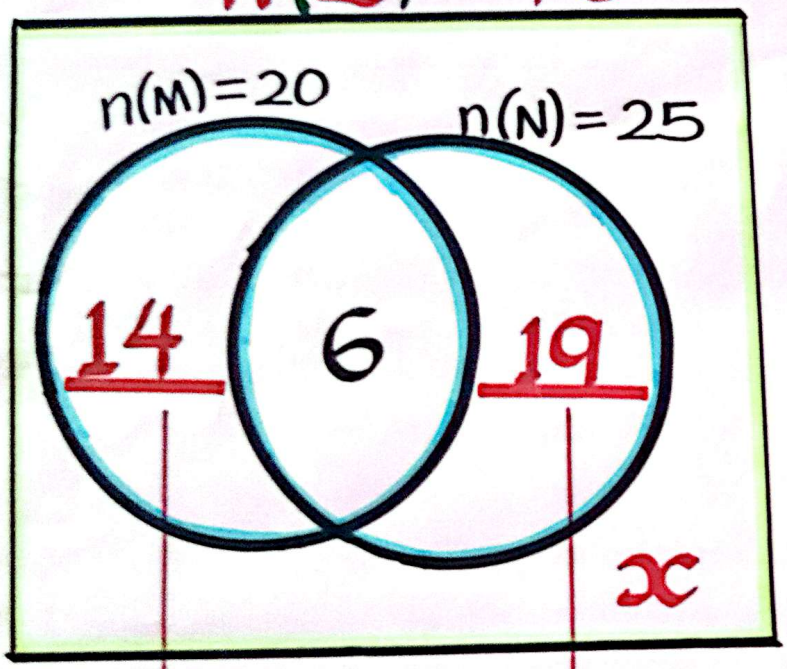


2. How many elements are in a set of 8 subsets?

INTERPRETATION OF VENN-DIAGRAMS

Complete the Venn-diagram below.

$n(\xi) = 45$



20-6
14

25-6
19

(ii) Find the number of elements in $(M \cup N)'$

$x + 14 + 6 + 19 = 45$

$x + 39 = 45$

$x + 39 - 39 = 45 - 39$

$x = 6$

iii. Find $n(A)'$.