

i) The largest number of 5-digit is 99999 and the smallest number of 6-digit is 100000.

ii) The difference between the smallest no. of four digits and the largest no. of three digits = $1000 - 999 = 1$

iii) Four lakh sixty-seven thousand three hundred six.

= 4,67,306 (in numeral form)

= 467,306 (in international system)

Four hundred sixty seven thousand three hundred six
(in International numeration)

iv) Thirteen lakh forty five.

= 13,00,045 (in numeral form)

= 13,00,045 (in international system)

= One million three hundred thousand forty five (in International numeration)

v) On subtracting one from the smallest 4-digit no, we get 999 which is the largest 3-digit no.

2) i) Which is the smallest factor of 2314?

ans) b) 1

ii) Which is the smallest odd composite number?

ans) 9

iii) Which of the following is divisible by 2 but not by 4?

ans) 102

iv) Find the smallest number which, when divided by 12, 15, 18, 24 and 36 leaves no remainder.

ans) a) 360

v) Find the smallest no. which, when increased by 1 is divisible by 12, 18, 24, 32 and 40.

ans) a) 1439

vi) The product of two no.s is 19,200 and their HCF is 40. Find their LCM.

ans) b) 480

3) So) 428, 140, 625

4) Take two digits 4 and 5. The smallest 4-digit no. using the digit equal no. of times is

ans) a) 4455

Largest no. formed

5) ~~So) Smallest digit of 4 digits~~ without repetition. of digit = 965320

6) Smallest no. of four-digit without repetition = 1023
Largest no. of four-digit without repetition = 9876

7) Sol) Cardinal no. of $F = \{\text{whole no.s from 8 to 14}\}$

$$\therefore F = \{8, 9, 10, 11, 12, 13, 14\}$$

$$\text{Cardinal no. of } F = 7$$

8) i) $2y - 5 = -11$

Sol) $\Rightarrow 2y - 5 = -11$

$$\Rightarrow 2y = -11 + 5$$

$$\Rightarrow 2y = -6$$

$$\Rightarrow y = \frac{-6}{2} = -3$$

ii) $5y - 3.5 = 10$

Sol) $\Rightarrow 5y - 3.5 = 10$

$$\Rightarrow 5y = 10 + 3.5$$

$$\Rightarrow 5y = 13.5$$

$$\Rightarrow y = \frac{13.5}{5} = 2.7$$

9) Sol) Votes secured by candidate A = 932567

Votes secured by candidate B = 900235

$$\begin{aligned} \text{A won by no. of votes} &= 932567 - 900235 \\ &= 32332 \end{aligned}$$

$$932567$$

$$-900235$$

$$\hline 32332$$

\therefore Candidate A won by 32332 votes.

10) (Sol) Greatest 5-digit no. = 99999

The previous five digit nos in descending order are

$$99,999 > 99,998 > 99,997 > 99,996 > 99,995 > 99,994$$

11) (Sol) Smallest 7-digit no. = 10,00,000

The next four numbers in ascending order are

$$10,00,000 > 10,00,001 > 10,00,002 > 10,00,003 > 10,00,004$$

12) i) $2 \times 487 \times 50$

$$= (2 \times 50) \times 487$$

$$= 100 \times 487$$

$$= 48700$$

ii) $25 \times 444 \times 4$

$$= (25 \times 4) \times 444$$

$$= 100 \times 444$$

$$= 44400$$

13) i) 548×98

$$= 548 \times (100 - 2)$$

$$= 548 \times 100 - 548 \times 2$$

$$= 54800 - 1096$$

$$= 53704$$

ii) 924×997

$$= 924 \times (1000 - 3)$$

$$= 924 \times 1000 - 924 \times 3$$

$$= 924000 - 2772$$

$$= 921228$$

Page No. _____
Date _____

$$\begin{aligned} \text{iii)} & 3002 \times 723 \\ & = (3000 + 2) \times 723 \\ & = 3000 \times 723 + 2 \times 723 \\ & = 2169000 + 1446 \\ & = 2170446 \end{aligned}$$

$$\begin{aligned} \text{13)} & 259 + 214 \\ & = 473 \end{aligned}$$

$$\begin{aligned} \text{i)} & -528 + (-243) \\ & = -528 - 243 \\ & = -771 \end{aligned}$$

$$\begin{aligned} \text{ii)} & -623 + 326 \\ & = -297 \end{aligned}$$

$$\begin{aligned} \text{14)} & 453 - (-123) \\ & = 453 + 123 \\ & = 576 \end{aligned}$$

$$\begin{aligned} \text{i)} & -12 - (-78) \\ & = -12 + 78 \\ & = 66 \end{aligned}$$

$$\begin{aligned} \text{ii)} & -124 - 329 \\ & = -453 \end{aligned}$$

$$\begin{aligned} \text{iv)} & 0 + (+222) \\ & = 0 + 222 \\ & = 222 \end{aligned}$$

18) Sol) Given,

HCF = 50

LCM = 300

One no. = 150

Other no. = $\frac{1}{50} \times 300 = \frac{300}{50} = 60$

∴ Other no. = 60

∴ Product of 2 no.s = Product of their HCF and LCM

19) Sol) We know,

(Product of two no.s = Product of their HCF and LCM)

Given,

Product of two no.s = 432

LCM = 72

HCF = $\frac{432}{72} = 6$

20) i) $x + x^2$

Degree of polynomial = 2

ii) $5x^2 - 7x + 2$

Degree of polynomial = 2

iii) $x^3 - x^8 + x^{10}$

Degree of polynomial = 10

iv) $1 - 100x^2$

Degree of polynomial = 2

21) i) $5xy$
Numerical coefficient = 5

ii) abc
Numerical coefficient = 1

iii) $5pqr$
Numerical coefficient of the monomial = 5

iv) $\frac{-2x}{4}$
Numerical coefficient = -2

$$\begin{aligned} 22) \text{Sol) } 2300023 &= 2300000 + 23 \\ &= 23 \times (100000 + 1) \\ &= 23 \times 100001 \end{aligned}$$

Clearly, 2300023 is divisible by 23

$$\begin{aligned} 23) \text{ i) } 11011 &= 11000 + 11 \\ &= 11 \times (1000 + 1) \\ &= 11 \times 1001 \end{aligned}$$

Clearly, 11011 is divisible by 11.

$$\begin{aligned} \text{ii) } 110011 &= 110000 + 11 \\ &= 11 \times (10000 + 1) \\ &= 11 \times 10001 \end{aligned}$$

Clearly, 110011 is divisible by 11.

$$\begin{aligned} \text{iii) } 11000011 &= 11000000 + 11 \\ &= 11 \times (1000000 + 1) \\ &= 11 \times 1000001 \end{aligned}$$

Clearly, 11000011 is divisible by 11.

24) i) $1608 = 1600 + 8$

$$= 8 \times (200 + 1)$$

$$= 8 \times 201$$

Clearly, 1608 is divisible by 8.

ii) $56008 = 56000 + 8$

$$= 8 \times (7000 + 1)$$

$$= 8 \times 7001$$

Clearly, 56008 is divisible by 8.

iii) $240008 = 240000 + 8$

$$= 8 \times (30000 + 1)$$

$$= 8 \times 30001$$

Clearly, 240008 is divisible by 8.

25) i) 352

Sol) Unit digit = 2

352 is divisible by 2 as 2 is an even no.

ii) 523

Sol) Unit digit = 3

523 is ^{not} divisible by 2 as 3 is not an even no.

iii) 496

Sol) Unit digit = 6

496 is divisible by 2 as 6 is an even no.

iv) 649

Sol) Unit digit = 9

649 is not divisible by 2 as 9 is not an even no.

25) ans) 352, 496

26) i) 9990

Sol) Unit digit = 0

Hence, 9990 is divisible by 10.

ii) 0

Sol) Unit digit = 0

Hence, 0 is divisible by 10.

iii) 847

Sol) Unit digit = 7

Hence, 847 is not divisible by 10.

iv) 8976

Sol) Unit digit = 6

Hence, 8976 is not divisible by 10.

26) ans) 9990, 0

27) i) 5918

Sol) Sum of even digits = $8+9=17$

Sum of odd digits = $5+1=6$

Their difference = $17-6=11$

Hence, 5918 is divisible by 11.

ii) 68717

Sol) Sum of even digits = $1+8=9$

Sum of odd digits = $7+7+6=20$

Their difference = $20-9=11$

Hence, 68717 is divisible by 11.

~~Ans)~~

iii) 3882

Sol) Sum of the even digits = $3+8=11$

Sum of the odd digits = $2+8=10$

Their difference = $11-10=1$

\therefore 3882 is not divisible by 11.

iv) 10857

Sol) Sum of even digits = $5+0=5$

Sum of odd digits = $7+8+1=16$

Their difference = $16-5=11$

\therefore 10857 is divisible by 11.

27) Ans) 5918, 68717, 10857

28) i) $64M3$

Sol) For a no. to be divisible by 3 sum of its digits must be divisible by 3.

Sum of digits = $6+4+3+M=13+M$

The next no. divisible by 3 is next to 13 is 15,

Required smallest no. = $15-13=2$

\therefore Value of $M=2$.

ii) $46M46$

Sol) For a no. to be divisible by 3 sum of its digits must be divisible by 3.

The sum of the no. digits = $4+6+4+6+M=20+M$

The no. divisible by 3 next to 20 is 21.

Required smallest no. = $21-20=1$

\therefore Value of $M=1$

ii) 27M59

So) For a no. to be divisible by 3 its sum of its digits must be divisible by 3.

$$\text{Sum of digits} = 2 + 7 + 5 + 3 + M = 17 + M$$

The no. divisible by 3 next to 17 is 18.

$$\text{Required smallest no.} = 18 - 17 = 1$$

∴ Value of $M = 1$

29) So) Cost of one pencil = Rs 2.

Cost of one fountain pen = Rs 15

$$\therefore \text{Cost of } x \text{ pencils} = 2 \times x = 2x$$

$$\text{Cost of } y \text{ fountain pens} = 15 \times y = 15y$$

$$\text{Total cost} = \text{Rs } (2x + 15y)$$

30) So) Let, the no. be x .

$$x \text{ multiplied by } 5 = 5x$$

$$\text{Then, } 6 \text{ added to the result} = 5x + 6$$

$$y \text{ subtracted from the result} = 5x + 6 - y$$

$$\therefore \text{The required answer} = 5x + 6 - y$$

31) So) Let, the no. of rooms in first floor be x ,

A/Q, the no. of rooms in ^{ground} ~~second~~ floor = 12 less than twice x

$$= 12 \text{ less than } 2 \times x$$

$$= 2x - 12$$

$$\therefore \text{No. of rooms in ground floor} = 2x - 12$$

32) Sol) Let, the no. be x .

$$\text{A/q, } \frac{x}{4} + \frac{2x}{7} = 135$$

$$\Rightarrow 7x + 8x = 135 \times 28$$

$$\Rightarrow 15x = 3780$$

$$\Rightarrow x = \frac{3780}{15}$$

$$\Rightarrow x = 252$$

$$\Rightarrow x = 252$$

\therefore Required no. = 252

33) Sol) Let, the no. be x .

$$\text{A/q, } (x+12) \times 5 = 95$$

$$\Rightarrow x+12 = \frac{95}{5}$$

$$\Rightarrow x+12 = 19$$

$$\Rightarrow x = 19 - 12$$

$$\Rightarrow x = 7$$

\therefore The original no. = 7

34) Sol) Let, the no. be x ,

$$\text{A/q, } x + 26 = 18$$

$$\Rightarrow x + 26 = \frac{18 \times 33}{33} \Rightarrow x + 26 = 594$$

$$\Rightarrow x + 26 = 594$$

$$\Rightarrow x = 594 - 26$$

$$\Rightarrow x = 568$$

\therefore Required original no. = 568.

35) Sol) Let the age of the son be x years,
His father's age = $x + 27$ years.

A/Q, $x + (x + 27) = 47$

$\Rightarrow x + x + 27 = 47$

$\Rightarrow 2x = 47 - 27 = 20$

$\Rightarrow x = \frac{20}{2} = 10$

\therefore The age of the son = 10 years,
His father's age = $x + 27$ years
 $= 10 + 27$
 $= 37$ years.

36) ~~Sol~~ i) $\{2, 4, 6, 8, \dots, 800\}$

Sol) Finite set.

ii) $\{\dots, -5, -4, -3, -2\}$

Sol) Infinite set

iii) $\{x : x \text{ is an integer between } -60 \text{ and } 60\}$

Sol) Finite set.

iv) $\{\text{No. of electrical appliances working in your house}\}$

Sol) Finite Set.

v) $\{x : x \text{ is a whole no. greater than } 20\}$

Sol) Finite Set

37) i) $\{\dots, -8, -4, 0, 4, 8\}$ is a finite set.

Sol) False

ii) $\{-32, -28, -24, -20, \dots, 0, 4, 8, 16\}$ is an infinite set

Sol) False

iii) $\{x : x \text{ is a natural no. less than } 1\}$ is a empty set.
Sol) True

iv) $\{\text{Whole numbers between 5 and 6}\} = \{\text{Natural numbers between 5 and 6}\}$ Sol) True

v) $\{\text{Add no.s divisible by 2}\}$ is a empty set.
Sol) True

3) i) $A = \{\text{Girls with ages below 15 years}\}$ and $B = \{\text{Girls with ages above 15 years}\}$.

Sol) Disjoint set, because, no girl can be both above and below the age of 15.

ii) $C = \{\text{Boys with ages above 20 years}\}$ and $D = \{\text{Boys the ages above 27 years}\}$.

Sol) Overlapping sets; as boys above 27 years and also below 20 years.

iii) $A = \{\text{Natural no.s between 35 and 60}\}$ and $B = \{\text{Natural no.s between 50 and 80}\}$

Sol) Overlapping sets; as natural no.s from 50 to 60 are common on both the sets.

iv) $P = \{\text{Students of class IX studying in ICSE board}\}$ and $Q = \{\text{Students of class IX}\}$

Sol) Overlapping sets; as students of class IX studying in ICSE board are common.

v) $A = \{\text{Natural numbers of multiples of 3 and less than 30}\}$ and $B = \{\text{Natural no.s divisible by 4 between 20 & 35}\}$

Sol) Overlapping sets; as natural no. 24 is common on both the sets.

38) i) $A = \{0, 1, 2, 4\}$

Sol) Cardinal no. for $A = 4$

ii) $B = \{-3, -1, 1, 3, 5, 7\}$

Sol) Cardinal no. for $B = 6$

iii) $C = \{\}$

Sol) Cardinal no. for $C = 0$

iv) $D = \{3, 2, 2, 1, 3, 1, 2\}$

Sol) Cardinal no. for $D = 3$

v) $F = \{\text{natural nos between 15 and 20}\}$

Sol) Cardinal no. for $F = 4$

39) Sol) Only one

40) Sol) Only one