

AUTUMN
HOLIDAY HOMEWORK

classmate

Date _____

Page _____

- 1.i) The largest number of 5 digits is 99,999 and the smallest number of 6 digits is 1,00,000.
- ii) The difference between the smallest number of four digits and the largest number of three digits
 $= 1,000 - 999 = 1$
- iii) Four lakhs 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 lakhs forty-five
 $= 13,00,045$ (in numeral form)
 $= 130,045$ (in International System)
 $=$ One hundred thirty thousand forty five
 $= 1,300,045$ (in numeral form)
 $=$ One million three hundred thousand forty five (in International numeration)
- v) On subtracting one from the smallest four-digit number, we get 999 which is the largest three-digit number.

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

Ans $\rightarrow$ b) 1

ii) Which is the smallest odd composite number?

Ans $\rightarrow$ c) 9

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

Ans $\rightarrow$ a) 102

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

Ans $\rightarrow$ a) 360

v) Find the smallest number which, when increased by one is exactly divisible by 12, 18, 24, 32 and 40.

Ans $\rightarrow$ a) 1439

vi) The product of two numbers is 19,200 and their HCF is 40. Find their LCM.

Ans $\rightarrow$ b) 480

3. Write 428140625 by placing commas according to International System.

Ans $\rightarrow$ 428,140,625

4. Take two digits 4 and 5. The smallest 4-digit number using the digits equal number of times is:

Ans $\rightarrow$ a) 4455

5. Form the largest number with the digits 2, 3, 5, 9, 6 and 0 without repetition of any digit.

Ans $\Rightarrow$ Largest number = 9,65,320

6. Write the smallest and the greatest numbers of 4 digits without repetition of any digit.

Ans $\Rightarrow$ Smallest number = ~~9876~~ 1023

Greatest number = 9,876

7. Write the cardinal number of

$F = \{ \text{whole numbers from 8 to 143} \}$

Ans $\Rightarrow F = \{ \text{whole numbers from 8 to 143} \}$

$F = \{ 8, 9, 10, 11, 12, 13, 143 \}$

$n(F) =$

(cardinal number) = $n(F) = 7$

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

$\Rightarrow 2y = 11 + 5$

$\Rightarrow 2y = 16$

$\Rightarrow y = \frac{16}{2}$

$\Rightarrow y = 8$

ii.) $5y - 3.5 = 10$

$\Rightarrow 5y = 10 + 3.5$

$\Rightarrow y = 5y = 13.5$

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

$\Rightarrow y = 2.7$

9. Number, votes A scored = 9,32,567

Number of votes B scored = 9,00,235

As $9,32,567 > 9,00,235$

A won the election

By how much = $9,32,567 - 9,00,235$

$= 32,332$

$9,32,567$

$- 9,00,235$

$\underline{32,332}$

So, A score won the election by 32,332 votes.

10. 99,999 — Greatest 5-digit number

Previous five digit numbers in descending order-

99,998

99,997

99,996

99,995

99,994

11. Smallest 7-digit number - 10,00,000

Next four numbers in ascending order -

10,00,001

10,00,002

10,00,003

10,00,004

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

$= 2 \times 50 \times 487$

$= 100 \times 487$

$= \underline{48,700} \quad 48,700$

ii) $25 \times 444 \times 4$

$= 25 \times 4 \times 444$

$= 100 \times 444$

$= \underline{44,400} \quad 44,400$

13.i) 548×98

$= 548 (100 - 2)$

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

$= 54,800 - 1,096$

$= \underline{53,704}$

$$\begin{aligned}
 \text{ii)} \quad & 924 \times 997 \\
 &= 924(1000-3) \\
 &= 924 \times 1000 - 924 \times 3 \\
 &= 924000 - 2772 \\
 &= 921228
 \end{aligned}$$

$$\begin{aligned}
 \text{iii)} \quad & 3002 \times 723 \\
 &= 723(3000+2) \\
 &= 723 \times 3000 + 723 \times 2 \\
 &= 1469000 + 1446 \\
 &= 1469000 + 2169 + 2169 + 1446 \\
 &= 2170446
 \end{aligned}$$

Add:

$$\text{i)} \quad 259 \text{ and } 214$$

$$\begin{aligned}
 \text{Ans} \rightarrow & 259 \text{ and } 214 \\
 &= 259 + 214 \\
 &= 473
 \end{aligned}$$

$$\text{ii)} \quad -528 \text{ and } -243$$

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

$$\begin{aligned}
 \text{iii)} \quad & -623 \text{ and } 326 \\
 &= 326 + (-623) \\
 &= 326 - 623 \\
 &= -297
 \end{aligned}$$

$$14.i) 453 - 123$$

$$= 330$$

$$ii) -12 - (-78)$$

$$= -12 + 78$$

$$= 66$$

$$iii) -124 - (+329)$$

$$= -124 - 329$$

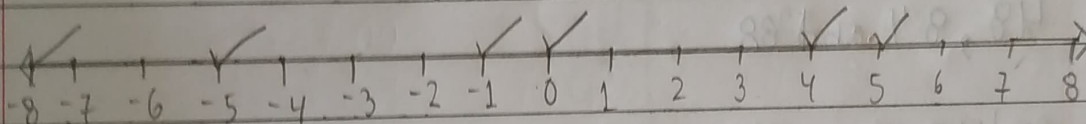
$$= -453$$

$$iv) 0 - (-222)$$

$$= 0 + 222$$

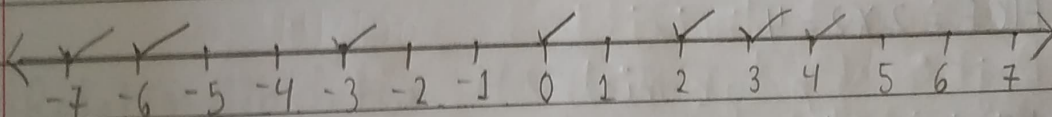
$$= 222$$

15.i)



Ascending order = -8, -5, -1, 0, 4, 5

ii)



Ascending order = -7, -6, -3, 0, 2, 3, 4

16.i) 5 and 8

5 and 8 are have no common factors, so their HCF is 1.

$$HCF = 1$$

ii) 24 and 49

~~24, 49~~24 and 49 have no common factor, so their ~~factor~~
are 1 HCF is 1

$$\text{HCF} = 1$$

iii) 40, 60 and 80

$$2 \overline{) 40, 60, 80}$$

$$2 \overline{) 20, 30, 40}$$

$$5 \overline{) 10, 15, 20}$$

$$2, 3, 4$$

$$\text{HCF} = 2 \times 2 \times 5 = 20$$

iv) 48, 84 and 88

$$2 \overline{) 48, 84, 88}$$

$$2 \overline{) 24, 42, 44}$$

$$12, 21, 22$$

$$\text{HCF} = 2 \times 2 = 4$$

v) 12, 16 and 28

$$2 \overline{) 12, 16, 28}$$

$$2 \overline{) 6, 8, 14}$$

$$3, 4, 7$$

$$\text{HCF} = 2 \times 2 = 4$$

17. $HCF = 50$, $LCM = 300$, One number = 150 , Other = ?

~~Q~~ Relationship between HCF and LCM

$HCF \times LCM = \text{Product of two numbers}$

$$\begin{aligned} HCF \times LCM &= 50 \times 300 \\ &= 15,000 \end{aligned}$$

$$\begin{aligned} \text{Other number} &= \frac{HCF \times LCM}{\text{One number}} \\ &= \frac{15,000}{150} \\ &= \cancel{100} 100 \end{aligned}$$

$$\begin{array}{r} 100 \\ 150 \overline{) 15,000} \\ \underline{-1500} \\ 00 \\ \underline{-00} \\ 00 \\ \underline{-0} \\ 0 \end{array}$$

So, the other number is 100.

18. Relationship between HCF and LCM

$HCF \times LCM = \text{Product of two numbers}$

Product of two numbers = 432 , ~~HCF~~ $LCM = 72$,
 $HCF = ?$

$$\begin{aligned} HCF &= \frac{\text{Product of two numbers}}{LCM} \\ &= \frac{432}{72} \\ &= 6 \end{aligned}$$

$$\begin{array}{r} 6 \\ 72 \overline{) 432} \\ \underline{-432} \\ 0 \end{array}$$

So, the HCF is 6.

19. 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

20. i) $5xy$

Numeral coefficient = 5

ii) abc

Numeral coefficient = 1

$$\text{iii)} 5pqz$$

$$\text{Numerical coefficient} = 5$$

$$\text{iv)} \frac{-2x}{y}$$

$$\text{Numerical coefficient} = -2$$

$$22.i) 11011 \div 11 \quad 11011$$

$$= 11000 + 11$$

$$= 11(1000 + 1)$$

$$= 11 \times 1001$$

$$\text{ii)} 110011$$

$$= 110000 + 11$$

$$= 11(10000 + 1)$$

$$= 11 \times 10001$$

$$\text{iii)} 11000011$$

$$= 11000000 + 11$$

$$= 11(1000000 + 1)$$

$$= 11 \times 1000001$$

$$23.i) 1608$$

$$= 1600 + 8$$

$$= 8(200 + 1)$$

$$= 8 \times 201$$

$$\begin{aligned}\text{ii)} \quad & 56008 \\ & = 56000 + 8 \\ & = 8(7000 + 1) \\ & = 8 \times 7001\end{aligned}$$

$$\begin{aligned}\text{iii)} \quad & 240008 \\ & = 240000 + 8 \\ & = 8(30000 + 1) \\ & = 8 \times 3001\end{aligned}$$

24.i) 352 is divisible ^{by} as 2 as it has 2 in its unit's place which satisfies the divisibility rule of 2.

ii) 523 is not divisible by 2 as it ^{has} 3 in its unit's place which doesn't satisfies the divisibility rule of 2.

iii) 496 is no divisible by 2 ~~as~~ as it has 6 in its unit's place which satisfies the divisibility rule of 2.

iv) 649 is not divisible by 2 as it ~~is~~ has 9 in its unit's place which doesn't satisfies the divisibility rule of 2.

25.i) 9990 is divisible by ¹⁰ as it has 0 in its unit's place which satisfies the divisibility rule of 10.

ii) 0 is divisible by 10 as it has 0 in its unit's place which satisfies the divisibility rule of 10.

- iii) 847 is not divisible by 10 as it has 7 in its unit's place which doesn't satisfy the divisibility rule of 10.
- iv) 8706 is not divisible by 10 as it has 6 in its unit's place which doesn't satisfy the divisibility rule of 10.
26. i) 5918 is divisible by 11 as the difference of its sum of odd places and even places is divisible by 11 which satisfies the divisibility rule of 11.
- ii) 68,717 is divisible by 11 as the difference of its sum of odd places and even places is divisible by 11 which satisfies the divisibility rule of 11.
- iii) 3882 is not divisible by 11 as the difference of its sum of odd places and even places is not divisible by 11 which doesn't satisfy the divisibility rule of 11.
- iv) 10857 is divisible by 11 as the difference of its sum of odd places and even places is not divisible by 11 which doesn't satisfy the divisibility rule of 11.
27. i) If the sum of digits of the number is divisible by 3 then the number is divisible by 3.

$$\begin{aligned}\text{The sum of digits} &= 6+4+1+3 \\ &= 13+M\end{aligned}$$

The nearest number of 13 which is divisible by 3 is 15

$$15 - 13 = 2$$

So, $M = 2$

The number is ~~624~~ 6423.

of the

ii) If the sum of the digits of the number is divisible by 3 then the number is divisible by 3.

$$\begin{aligned} \text{Sum of digits} &= 4 + 6 + 4 + 6 + 11 \\ &= 20 + 11 \end{aligned}$$

The nearest number of 20 that is divisible by 3 is 21

$$21 - 20 = 1$$

So, $M = 1$

The number is 46146.

iii) If the sum of digits of the number is divisible by 3 then the number is divisible by 3.

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

The nearest number of 17 which is divisible by 3 is 18

$$18 - 17 = 1$$

$$\text{So, } M = 1$$

The number is 27153.

28. The cost one pencil - Rs. 2

The cost x pencils - ~~Rs.~~ $2x$

The cost of one fountain pen - Rs. 15

The cost of y fountain pens - Rs. $15y$
 $Rs. 2x$

So, the cost of x pencils is $2x$ and the cost of y fountain pens is $Rs. 15y$

29. ~~The~~ I think of a number = 2

Multiply by 5 = $2 \times 5 = 10$
 $= 10$

~~So~~ Add 6 = $10 + 6$
 $= 16$

Subtract y from it = $16 - y$

Result = $16 - y$

So, the result is $16 - y$.

floor

30. Number of rooms on ground - less 12 less than twice of ~~floor~~ rooms on first floor.

Number of rooms on first floor - x

Number of rooms on ground ~~floor~~ - $2x - 12$

So, the number of rooms on ground floor is $2x - 12$.

31. Let the number be x .

A/Q

$$\frac{1}{4}x + \frac{2}{7}x = 135$$

$$\Rightarrow \frac{1}{4}x + \frac{2}{7}x = 135$$

$$\text{LCM} = 28$$

$$\Rightarrow \frac{1x}{4} \cdot \frac{7}{7} = \frac{7}{28}x + \frac{2x}{7} \cdot \frac{4}{4} = \frac{8x}{28} = 135$$

$$\Rightarrow \frac{7x}{28} + \frac{8x}{28} = 135$$

$$\Rightarrow \frac{7+8}{28}x = 135$$

$$\Rightarrow \frac{15}{28}x = 135$$

$$\Rightarrow x = \frac{135 \times 28}{15} = \frac{252}{1} = 252$$

$\Rightarrow x = 252$ So, the number is 252.

32. Let the number be x .

A/Q

$$(x+12) \times 5 = 95$$

$$\Rightarrow (x+12) = 95 \div 5$$

$$\Rightarrow (x+12) = 19$$

$$\Rightarrow x+12 = 19$$

$$\Rightarrow x = 19 - 12$$

$\Rightarrow x = 7$ So, the original number is 7.

33. Let the number be x .

A/Q

$$(x+26) \div 33 = 18$$

$$\Rightarrow (x+26) = 18 \times 33$$

$$\Rightarrow (x+26) = 594$$

$$\Rightarrow x+26 = 594$$

$$\Rightarrow x = 594 - 26$$

$$\Rightarrow x = 568$$

34. So, the original number is 568.

age of the son

34. Let the number be x .

Age of the man = $x + 27$

A/Q

$$x + x + 27 = 47$$

$$\Rightarrow 2x + 27 = 47$$

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

$$\Rightarrow 2x = 20$$

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

$$\Rightarrow x = 10$$

So, the age of the son is 10 years and his father is $10 + 27 = 37$ years.

35. i) $\{2, 4, 6, 8, \dots, 800\}$

It is a finite set.

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

It is an infinite set.

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

It is a finite set.

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

It is a finite set.

v) $\{x: x \text{ is a whole number greater than } 20\}$

It is an infinite set.

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

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

iii) $\{x: x \text{ is a natural number less than } 1\}$ is the empty set. True

iv) $\{\text{Whole numbers between } 15 \text{ and } 16\} = \{\text{Natural numbers between } 5 \text{ and } 6\}$. True

v) $\{\text{Odd numbers divisible by } 2\}$ is the empty set. True

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

They are disjoint sets.

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

They are overlapping sets.

- iii) $A = \{\text{Natural numbers between 35 and 60}\}$ and $B = \{\text{Natural numbers between 50 and 80}\}$

They are overlapping sets.

- iv) $P = \{\text{Students of class IX studying in I.C.S.E Board}\}$ $Q = \{\text{Students of class IX}\}$

They are overlapping sets.

- v) $A = \{\text{Natural numbers of multiples of 3 and less than 30}\}$ and $B = \{\text{Natural numbers divisible by 4 and between 20 and 45}\}$

They are overlapping sets.

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

$$n(A) = 4$$

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

$$n(B) = 6$$

$$iii) C = \{\}$$

$$n(C) = 0$$

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

$$n(D) = 3$$

$$v) E = \{\text{Natural numbers between 15 and 20}\}$$

$$\bullet \{16\}, F = \{16, 17, 18, 19\}$$

$$n(E) = 4$$

39. 1 perpendicular bisector can be there for a line segment of length 12 cm.

40. 1 line can pass through two points in a plane.