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Autumn Holiday Worksheet Pg-257

1) Fill in the blanks.

i) The largest number of 5-digit is 99,999 and the smallest number of 6-digit 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 form)

= Four hundred sixty seven thousand three hundred six (In International Numeration)

iv) Thirteen lakhs forty-five

= 13,00,045 (In Numeral form)

= 1,300,045 (In International System)

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= One million three hundred 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) Choose the correct answer.

i) Which is the smallest factor of 2314?

b) 1

ii) Which is the smallest odd composite number?

c) 9

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

a) 102

iv) Find the smallest number which

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when divided by 12, 15, 18, 24 and 36 leaves no remainder.

a) 360

The smallest number which when divided by 12, 15, 18, 24 and 36 leaves no remainder is their L.C.M.

The L.C.M =

$2 \times 3 \times 2 \times 3 \times 5 \times 2$

$= 360.$

2	36, 12, 15, 18, 24
3	18, 6, 15, 9, 12
2	6, 2, 5, 3, 4
3	3, 1, 5, 3, 2
	1, 1, 5, 1, 2

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

a) 1439

The smallest number which, when increased by 1 is exactly divisible by 12, 18, 24, 32 and 40 is their L.C.M - 1.

Their L.C.M =

L.C.M = $2 \times 2 \times 2 \times 3 \times 5 \times 3 \times 4 = 1440$

2	40, 12, 18, 24, 32
2	20, 6, 9, 12, 16
2	10, 3, 9, 6, 8
3	5, 3, 9, 3, 4
	5, 1, 3, 1, 4

$1440 - 1 = 1439$.

vi) The product of two numbers is 19,200 and their H.C.F is 40. Find their L.C.M.

b) 480

The product of two numbers = 19,200. Their H.C.F = 40

L.C.M = The product of two numbers ÷ the H.C.F = L.C.M.

$19,200 \div 40 = 480$.

Therefore, the L.C.M is 480.

$$
\begin{array}{r}
480 \\
40 \overline{)\,19,200} \\
-160 \\
\hline
320 \\
-320 \\
\hline
00 \\
-0 \\
\hline
0
\end{array}
$$

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

Ans → 428,140,625

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

a) 4455

5) Form the largest number with the digits 2, 3, 5, 9, 6, 0 without repeating any digit.

Ans → Largest Number → 9,65,320.

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

Ans → Smallest Number → 1,023

Greatest Number → 9,876

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7) Write the cardinal number of
$T = \{$ whole numbers from 8 to 14$\}$.

Ans → $T = \{8, 9, 10, 11, 12, 13, 14\}$

$n(T) = 7$

8) Solve the following:

i) $2y - 5 = -11$

Ans → $\Rightarrow 2y = -11 + 5$

$\Rightarrow 2y = -6$

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

$\Rightarrow y = -3$

ii) $5y - 3.5 = 10$

Ans → $\Rightarrow 5y = 10 + 3.5$

$\Rightarrow 5y = 13.5$

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

$\Rightarrow y = \frac{13.5}{10}$

$\Rightarrow y = \frac{135}{5}$

$\Rightarrow y = 27 = 2.7$

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9) In an election two candidates A and B are the only contestants. If candidate A scored 9,32,567 votes and candidate B scored 9,00,235 votes, by how much margin did A win or lose the election?

Ans → Number of votes contestant A got = 9,32,567.

Number of votes contestant B get = 9,00,235.

So, contestant A win the election.

Total number of votes by contestant A win =

$$\begin{array}{r} 9\,32\,567 \\ -\,9\,00\,235 \\ \hline 0\,32\,332 \end{array}$$

Therefore, contestant A have won the election by 32,332 votes.

10) Starting from the greatest 5-digit

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number, write the previous five numbers in descending.

Ans → 99,999, 99,998, 99,997, 99,996, 99,995, 99,994.

11) Starting from the smallest 7-digit number, write the next four numbers in ascending Order.

Ans → 10,00,000, 9,99,999, 9,99,998, 9,99,997, 9,99,996.

12) By re-arranging the given numbers, evaluate:

i) $2 \times 487 \times 50$

Ans → $(50 \times 2) \times 487$

$= 100 \times 487$

$= 48700$

ii) $25 \times 444 \times 4$

Ans → $444 \times (25 \times 4)$

$= 444 \times 100$

$= 44400$

13) Evaluate using properties:

i) 548×98

Ans → $= 548 (100 - 2)$

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

$= 54800 - 1096$

$= 53,704$

ii) 924×997

Ans → $= 924 (1000 - 3)$

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

$= 924000 - 2,772$

$= 9,21,228$

iii) 3002×723

Ans → $= 3002 (700 \times 20 \times 3)$

$= 21,01,400 + 60,040 + 9,006$

$= 21,70,446$

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14) Add:

i) 259 and 214

Ans → 259 + 214

= 473

ii) -528 and -243

Ans → -528 + -243

= -771

iii) -623 + 326

Ans → = -623 + 326

= -297

15) Subtract:

i) -123 from 453

Ans → = 453 - (-123)

= 453 + 123

= 576

ii) -78 from -12

Ans → = -12 - (-78)

= -12 + 78

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= 66

iii) 329 from −124

Ans → = −124 − 329

= −453

iv) −222 from 0

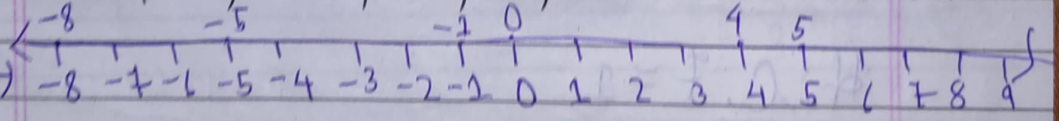
Ans → 0 − 222

= −222

16) In each case, arrange the given integers in ascending Order, using a number line:

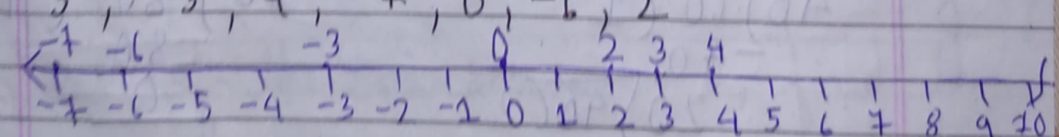
i) −8, 0, −5, 5, 4, −1

Ans →



Ascending Order → −8, −5, −1, 0, 4, 5

ii) 3, −3, 4, −1, 0, −6, 2



Ascending Order → −7, −6, −3, 0, 2, 3, 4.

17) Find the H.C.F of:

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i) 5 and 8

Ans →
$$\begin{array}{r|l} 5 & 8 \\ -5 & 1 \\ \hline 3 & 5 \\ -3 & 1 \\ \hline 2 & 3 \\ -2 & 1 \\ \hline 1 & 2 \\ -2 & 2 \\ \hline 0 & \end{array}$$

H.C.F = 1

ii) 24 and 49

Ans →
$$\begin{array}{r|l} 24 & 49 \\ -48 & 2 \\ \hline 1 & 24 \\ -24 & 1 \\ \hline 0 & \end{array}$$

H.C.F = 1

iii) 40, 60, 80

$$\begin{array}{r|l} 40 & 60 \\ -40 & 1 \\ \hline 20 & 40 \\ -40 & 2 \\ \hline 0 & \end{array}$$

$$\begin{array}{r|l} 20 & 80 \\ -80 & 4 \\ \hline 0 & \end{array}$$

H.C.F = 20

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iv) 48, 84, 88

Ans →
$$\begin{array}{r} 48 \overline{)84(1} \\ -48 \\ \hline 36 \overline{)48(1} \\ -36 \\ \hline 12 \overline{)36(3} \\ -36 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 12 \overline{)88(7} \\ -84 \\ \hline 4 \overline{)12(3} \\ -12 \\ \hline 0 \end{array}$$

H.C.F = 4

v) 12, 16 and 28

H.C.F = 2 × 2 = 4

$$\begin{array}{r|l} 2 & 12, 16, 28 \\ \hline 2 & 6, 8, 14 \\ \hline & 3, 4, 7 \end{array}$$

18) The H.C.F and L.C.M of two numbers are 50 and 300 respectively. If one of the number is 150, find the other one.

Ans → The H.C.F and L.C.M of a number = 50 and 300.

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One of the number = 150.

The other number = (H.C.F X L.C.M) ÷ 150

= (50 X 300) ÷ 150

= 15,000 ÷ 150

= 1,000

Therefore, the other number is 100.

19) The product of two numbers is 432 and their L.C.M is 72. Find their H.C.F.

Ans → Product of two numbers = 432.

The L.C.M = 72.

H.C.F = 432 ÷ 72

= 6

$$72 \overline{)432}$$
6
−432
0

Therefore, the H.C.F is 6.

20) Write the degree of each of the

following polynomials:

i) $x + x^2$

Ans→ $= x + x^2$

The degree of the polynomial is 2.

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

Ans→ The degree of the polynomial is 2.

iii) $x^3 - x^8 + x^{20}$

Ans→ The degree of the polynomial is 20.

iv) $1 - 100x^2$

Ans→ The degree of the polynomial is 2.

21) State the numeral coefficient of the following monomials:

i) $5xy$

Ans→ The numeral coefficient is 5.

ii) abc

Ans→ The numeral coefficient is 1.

iii) $5pqr$

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The numeral coefficient is 5.

22) Without making any actual division show that 2300023 is divisible by 23.

Ans → $2300023 = 2300000 + 23$

$= 23 \times (1,00,000 + 1) = 23 \times 100001$.

Therefore, 23,00,023 is clearly divisible by 23.

23) Without making any actual division, show that each of the following number is divisible by 11.

i) 11011

Ans → $11011 = 11000 + 11$

$= 11 \times (1000 + 1) = 11 \times 1001$

Therefore, clearly 11,011 is divisible by 11.

ii) 110011

Ans → $110011 = 110000 + 11$

$= 11 \times (10000 + 1) = 11 \times 10001$

Therefore, clearly 110011 is divisible by 11.

iii) 11000011

Ans → $11000011 = 11000000 + 11$

$= 11 \times (1000000 + 1) = 11 \times 1000001$

Therefore, clearly 11000011 is divisible by 11.

24) Without making any actual division show that each of the following numbers is divisible by 8.

i) 1608

Ans → $1608 = 1600 + 8$

$= 8 \times (200 + 1) = 8 \times 201.$

Therefore, clearly 1608 is divisible by 8.

ii) 56008

Ans → $56008 = 56000 + 8$

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$= 8 \times (7000 + 1) = 8 \times 7001$

Therefore, 56008 is clearly divisible by 8.

iii) 240008

Ans → $240008 = 240000 + 8$

$= 8 \times (30000 + 1) = 8 \times 30,001$

Therefore, 240008 is clearly divisible by 8.

5
2) Find which of the following numbers are divisible by 2?

i) 352

Ans → 352 is divisible by 2 as its one's place is an even number.

ii) 523

Ans → 523 is not divisible by 2.

iii) 496

Ans → 496 is divisible by 2.

iv) 649

isible by 8.

1

isible by

numbers

one's

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Ans→ 649 is not divisible by 2.

26) Find which of the following numbers are divisible by 10.

i) 9990

Ans→ 9,990 is divisible by 10.

ii) 0

Ans→ 0 is divisible by 10

iii) 847

Ans→ 847 is not divisible by 10.

iv) 8976

Ans→ 8976 is not divisible by 10.

27)(v) Find which of the following numbers are divisible by 11.

i) 5918

Ans→ The sum of even places = 9+8=17.

The sum of odd places = 5+1=6.

Difference between even places and odd

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places = 17 - 6 = 11.

11 is divisible by 11. Therefore, 5918 is divisible by 11.

ii) 6(8)7(1)7

Ans→ Sum of even places = 8 + 1 = 9.

Sum of odd places = 7 + 7 + 6 = 20.

Difference = 20 - 9 = 11.

11 is divisible by 11. Therefore, 68,717 is divisible by 11.

iii) 3(8)8(2)

Ans→ Sum of even places = 8 + 2 = 10.

Sum of odd places = 8 + 3 = 11

Difference = 11 - 10 = 1.

1 is not divisible by 11. Therefore, 3882 is not divisible by 11.

iv) 1(0)8(5)7

Ans→ Sum of even places = 0 + 5 = 5.

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Sum of odd places = 1 + 8 + 7 = 16.

Difference = 16 − 5 = 11.

11 is divisible by 11. Therefore, 10,857 is divisible by 11.

28) In each of the following numbers, replace M by the smallest number to make resulting number divisible by 3.

i) 64M3

Ans → 6 + 4 + M + 3 = 13 + M

⇒ 13 + 2 = 15

⇒ **M = 2**

ii) 46M46

Ans → 4 + 6 + M + 4 + 6 = 20 + M

⇒ 20 + 1 = 21

⇒ **M = 1**

iii) 27M53

Ans → 2 + 7 + M + 5 + 3 = 17 + M

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$\Rightarrow 17 + 1 = 18$

$\Rightarrow M = 11$

29) One pencil costs Rs 2 and one fountain pen costs Rs 15. What is the cost of x pencils and y fountain pens?

Ans - Cost of 1 pencil = ₹2.

Cost of 1 fountain pen = ₹15.

Cost of x pencils = $2 \times x$ = ₹$2x$.

Cost of y fountain pens = ₹$15 \times y$

= ₹$15y$.

30) Think of a number. Multiply it by 5. Add 6 to the result. Subtract y from this result. What is the result?

Ans - Let the number be x.

$\Rightarrow x \times 5 = 5x$

$\Rightarrow 5x + 6$

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$\Rightarrow 5x + 6 - y$

Therefore, the result is $5x + 6 - y$.

31) The number of rooms on the ground floor of a building is 12 less than the twice of the number of rooms on the first floor. If the first floor has x rooms, how many rooms does the ground floor has?

Ans→ The number of rooms on the first floor = x.

Twice the number of rooms on the first floor = $2x$.

12 less than the number of rooms on the ground floor = $2x - 12$

Therefore, the total number of rooms are there in the ground floor is $2x - 12$ rooms.

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32) One-fourth of a number added to two-seventh of it gives 135; find the number.

Ans: Let the number be x.

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

$\Rightarrow \frac{7x + 8x}{28} = \frac{15x}{28}$

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

$\Rightarrow 15x = 135 \times 28$

$\Rightarrow 15x = 3,780$

$\Rightarrow x = \frac{3,780}{15}$

$\Rightarrow x = 252$

Therefore, the number is 252.

33) A number is increased by 12 and the new obtained is multiplied by 5. If the resulting number is 95, find the original number.

Ans: Let the number be x.

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$\Rightarrow x + 12 \times 5 = 95$

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

$\Rightarrow x + 12 = 19$

$\Rightarrow x = 19 - 12$

$\Rightarrow x = 7$

Therefore, the original number is 7.

34) A number is increased by 26, and the new number obtained is divided by 33. If the resulting number is 18; find the original number.

Ans → Let the number be c.

$\Rightarrow c + 26 \div 33 = 18$

$\Rightarrow c + 26 = 18 \times 33$

$\Rightarrow c + 26 = 594$

$\Rightarrow c = 594 - 26$

$\Rightarrow c = 568$

Therefore, the original number is 568.

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35) The age of a man is 27 years more than the age of his son. If the sum of their ages is 47 years, find the age of the son and his father.

Ans→ Let the age of the ~~man~~ son be x years.

Let the age of the man be $x+27$ years.

$\Rightarrow x + x + 27 = 47$

$\Rightarrow 2x + 27 = 47$

$\Rightarrow 2x = 47 - 27$

$\Rightarrow 2x = 20$

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

$\Rightarrow x = 10$

So, the age of the son is 10 years

The age of his father is $10 + 27 = 37$ years.

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36) State, wheather the following are finite or infinite sets.

i) {2, 4, 6, 8, ... 800} → Finite Set

ii) {....., -5, -4, -3, -2} → Infinite Set

iii) {x : x is an integer between -60 and 60} → Finite Set

iv) {No. of electrical applicances working in your house} → Finite Set

v) {x : x is an whole number greater than 20} → Infinite Set

37) State, give reasons, which of the following pairs of sets are disjoint sets and which are overlapping sets.

i) A = {Girles with ages below 15 years} and B = {Girles with ages below 15 years}.

Ans → Disjoint Sets; as the girles who are

below 15years they can't be above 15years.

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

Ans→ Overlapping Sets; the boys whose ages are above 20years and the boys whose ages are above 27 years after 28 years their ages will be same.

iii) A = {Natural Numbers between 35 and 60} and B = {Natural Numbers between 50 and 80}.

Ans→ Overlapping Sets; as in both the sets the numbers 51 to 59 are common.

iv) P = {Students of class IX studying in I.C.S.E board} and Q = {Students of Class IX}

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Ans→ Overlapping sets; as the students studying in class IX and class IX I, C, S, E are the common.

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

Ans→ Overlapping sets; as the natural number 24 is common in both the sets.

39) Write the cardinal number of each of the following sets:

i) A = {0, 1, 2, 4}

Ans→ n(A) = 4

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

Ans→ n(B) = 6

iii) C = {}

Ans→ n(C) = 0

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

Ans → $n(D) = 3$

v) $\xi = \{$ Natural Numbers between 15 and 20$\}$

Ans → $n(\xi) = 4$

40) How many perpendicular bisectors are there for a line segment of length 12cm.

Ans → Only One

41) How many lines can pass through two points in a plane ?

Ans → Only One