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Autumn Holiday Homework - worksheet

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1. Fill in the blanks:

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 = ~~9999~~ 1000 − 999 = 1

iii) Four lakhs sixty-seven thousand ~~three~~ three hundred six.
= 4,67,306 (in numeral form)
= 467,306 (In international system)
= Four hundred sixty seven thousand three hundred six (International numeration)

iv) Thirteen lakhs forty-five
= 13,00,045 (In numeral form)
= 1,300,045 (In International system)
= One million three hundred thousand forty-five (In International numeration)

v) On subtracting one from the smallest four-digit, we get 999 which is the 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 ~~one~~ composite number

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c) 9

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

d) 142

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

a) 360

Solution:

The smallest number which, when ~~it~~ divided by 12, 15, 18, 24 and 36 leaves no ~~rem~~ remainder is their LCM,

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

∴ LCM = 2×3×2×3×5×2 = 360

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

a) 1439

Solution:

The smallest number which, when increased by one is exactly divisible by 12, 18, 24, 32 and 40 is their LCM+1

LCM = 2×3×2×2×3×4×5 = 1440

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

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∴ The required number = 1440 − 1 = 1439

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

b) 480

Solution:
The product of two numbers = 19,200
HCF = 40
As, product of two numbers = HCF × LCM
∴ LCM = $\frac{19,200}{40}$ = 480

~~4. Take two digits 4 and 5. The smallest 4 digit number~~

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

Solution:
428140625 in International system = 428,140,625

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

a) 4455

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

Ans- The largest number with the digits 2, 3, 5, 9, 6 and 0 without repitition of any digit = 203,569.

6. Write the smallest and the ~~largest~~ greatest numbers of 4 digits without repitition of any digit.

Ans- The smallest 4digit number without repitition of any digit = 1023
The ~~larg~~ greatest 4-digit number without repitition of any

digit = 9,876

7. Write the cardinal numbers of
F = {whole numbers from 8 to 14}

Ans n(A) = 7

8. Solve the following.

i) $2y - 5 = -11$

$\Rightarrow 2y = -11 + 5 = -6$

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

ii) $5y - 3.5 = 10$

$\Rightarrow 5y = 10 + 3.5 = 13.5$

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

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

Solution:

Score of Candidate A: 9,32,567

Score of Candidate B = 9,00,235

As, $3 > 0$, 9,32,567 > 9,00,235

So, Candidate A won the election by margin of

= 9,32,567 − 9,00,235 = 32,332

∴ Candidate A won the election by margin of 32,332

10 Ans- Greatest 5-digit number = 99,999

Its previous five numbers = 99,999 > 99,998 > 99,997 > 99,996 > 99,995 > 99,994

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11. Smallest 7-digit number = 10,00,000
Next four numbers in ascending order =
10,00,000 ; 10,00,001 ; 10,00,002 ; 10,00,003 ;
10,00,004 ; 10,00,005.

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
$= 924 \times (1000 - 3)$
$= 924 \times 1000 - 924 \times 3$
$= 924000 - 2772$
$= 50,932$

iii) 3002×723
$= (3000 + 2) \times 723$
$= 3000 \times 723 + 723 \times 2$
$= 2169000 + 1446$
~~$2169000 + 1446$~~
$= 2170446$

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13.i) $259 + 214$

$= 473$

ii) $(-528) + (-243)$

$= -771$

iii) $(623) + 326$

$= 623 - 326$

$= (-297)$

14.i) $453 - (-123)$

$= 453 + 123$

$= 576$

ii) $-12 - (-78)$

$= -12 + 78$

$= 78 - 12$

$= 66$

iii) $-124 - 329$

$= 124 + 329$

$= -453$

iv) $0 - (-222)$

$= 0 + 222$

$= 222$

15) i)

$-8 < -5 < -1 < 0 < 4 < 5$

ii) 

16.i) HCF of 5 and 8 = 1

ii) ~~24~~ HCF of 24 and 49 = 1

= ~~2|24,48~~

iii) HCF of 40, 60 and 80 = 2|40,60,80
2|20,30,40
5|10,15,20
2,3,4

∴ HCF = 2×2×5 = 20

iv) HCF of 48, 84 and 88 = 2|48,84,88
2|24,42,44
12,21,22

∴ ~~HCF = 2×2~~ HCF = 2×2 = 4

17. HCF of two numbers = 50
Their LCM = 300
One of the numbers = 150
As, product of two numbers = HCF × LCM
= 50 × 300 = 15,000

∴ The other number = 15,000 ÷ 150 = 100.

18. Product of two numbers = 432
Their LCM = 72
As, product of two numbers = HCF × LCM
∴ The HCF = ~~432~~ / 72 = 6

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19. i) Degree of polynomial in $x+x^2=3$

ii) Degree of polynomial in $5x^2-7x+2=3$

iii) Degree of polynomial in $x^3-x^8+x^{10}=21$

iv) Degree of polynomial in $1-100x^2=2$

20. i) 5

ii) 1

iii) 5

iv) -2

21. $2300000+23 = 23\times(100000+1) = 23\times100001$

22. i) 11011

Sum of odd's place digits = 1+0+1=2

Sum of even's place digits = 1+1=2

Difference between sum of odd's and even's place digits = 2-2=0

∴ 11011 is divisible by 11.

ii) 110011

Sum of odd's place digits = 1+0+1=2

Sum of even's place digits = 1+0+1=2

Difference = 2-2=0

∴ 110011 is divisible by 11.

iii) 1100011

Sum of odd's place digits = 1+0+0+1=2

Sum of even's place digits = 1+0+0+1=2

Difference = 2-2=0

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∴ 1100011 is divisible by 11.

23. i) 1608
As, 608 is divisible by 8, so 1608 is divisible by 8.

ii) 56008
As, 8 is divisible by 8, so 56008 is divisible by 8.

iii) 240008
As, 8 is divisible by 8, so 240008 is divisible by 8.

24. i) As, 352 is an even number, it is divisible by 2.

ii) As, 523 is not an even number, it is not divisible by 2.

iii) As, 496 is an even number, it is divisible by 2.

iv) As, 649 is not an even number, it is not divisible by 2.

25. i) As, the units place digit is 0, in 4990, it is divisible by 10.

ii) 0 is divisible by 10.

iii) 847 is not divisible by 10, as the unit's place digit is not 0.

iv) 8976 is not divisible by 10, as, it's unit's place digit is not 0.

26. i) 5918,
Sum of odd's place digits = 9+8 = 17
Sum of even's place digits = 5+1 = 6
Difference = 17-6 = 11
∴ 5918 is divisible by 11

ii) Sum of odd's place digits = 6+7+7 = 20
Sum of even's place digits = 8+1 = 9
Difference = 20-9 = 11
∴ 68,717 is divisible by 11.

iii) 3882
Sum of odd's place digits = 8+2 = 10.
Sum of even's place digits = 3+8 = 11
Difference = 11-10 = 1
∴ 3882 is not divisible by 11.

iv) 10857
Sum of odd's place digits = 1+8+7 = 16
Sum of even's place digits = 0+5 = 5
Difference = 16-5 = 11
∴ 10857 is divisible by 11.

27. i) 64M3
∴ 6+4+M+3 = 13+M
⇒ M = 2
6+4+2+3 = 15, which is divisible by 3
∴ M = 2.

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ii) 46M46

~~As 4+6+M~~

4+6+M+4+6 = 20+M

As, 20+1 = 21, which is divisible by 3

∴ M = 1

iii) 27M53

2+7+M+5+3 = 17+M

As, 17+1 = 18, which is divisible by 3,

∴ M = 1

29) Ans- let the number be x

Result = 5x + 6 - y = 5x + 6 - y

28) Cost of one pencil = ₹2

Cost of one fountain pen = ₹15

∴ Cost of x pencils = ₹2 × x = ₹2x and,

Cost of y fountain pens = ₹15 × y = ₹15y.

30. Number of rooms on ground floor = 12 less than twice the number of rooms on first floor.

Number of rooms in first floor = x

Number of rooms on ground floor = 2 × x - 12 = 2x - 12

31. Let the number be x

One-fourth of the number + two-seventh of it = 135

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

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

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

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

32. Let the number be x
As per the question,
A number + 12 × 5 = 95
$\Rightarrow x + 12 \times 5 = 95$
$\Rightarrow x + 12 = \frac{95}{5} = 19$
$\Rightarrow x = 19 - 12 = 7$
∴ The number is 7.

33. Let the number be x
As per the question,
A number + 26 ÷ 33 = 18
$\Rightarrow x + 26 \div 33 = 18$
$x + 26 = 18 \times 33$
$\Rightarrow x + 26 = 594$
$\Rightarrow x = 594 - 26 = 568$

34. Let the age of the boy be x
As per the question,
The man's age is 27 more than the age of his son.
Sum of their ages = 47 years.
$\Rightarrow x + x + 27 = 47$
$\Rightarrow 2x + 27 = 47$
$\Rightarrow 2x = 47 - 27 = 20$
$\Rightarrow x = \frac{20}{2} = 10$

Age of father = 10 + 27 = 37
∴ Age of father = 37 years and age of son = 10 years.

v) ϕ Empty sets

35. i) Finite set
ii) Infinite set
iii) Finite set
iv) Finite set
v) Infinite set

36. i) False
ii) False
iii) True
iv) True
v) True

37. i) Disjoint sets, No girls can be of the ages below and above 15 years at the same time.

ii) Overlapping sets, Boys with ages above 20 years may also have ages above 27 years. For ex- A boy can be of 28 years which is above than both 20 and 27 years.

iii) Overlapping sets, Numbers from 51 to 59 come between bothe 35 and 60, and, 50 and 80.

iv) Overlapping sets, 24 is divisible by both 3 and 4 and comes between 20 and 45 and is less than 30.

38. i) $n(A) = 4$
ii) $n(B) = 6$
iii) $n(C) = 0$
iv) $n(D) = 3$

39) Only one perpendicular bisector.

40) Only one line can pass through two points in a plane