Mock Test Number: 004

1. Find X^y+y^x=46. Find X and y values?

A. X=45 & y=2
B. X=45 & y=1
C. X=46 & y=1
D. X=46 & y=2

Answer:

By Hit and trial

$X = 1, Y = 45$

$X = 45, Y = 1$

2. 3 white chips, 7 blue chips, 15 green chips, 2 chips drawn from the box in succession what is the probability that one is blue and other is white?

A. 7/50
B. 8/30
C. 7/100
D. 20/26

Answer:

Possibilities are Blue & white or white & Blue

$7/25 \times 3/24 + 3/25 \times 7/24$

$= \frac{21+21}{25 \times 24} = 7/100$

3. If a person has to work 8 continuous day & he gets a rest on the 9th day. If a person starts on Monday. What is the day of 12th rest day?

A. Sunday
B. Monday
C. Thursday
D. Friday

Answer:

Every 9th day he takes rest.

12th rest day would be $12 \times 9 = 108$th overall day

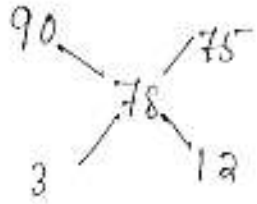
$\frac{108}{7} \Rightarrow$ Remainder $= 3$

$\therefore$ 3 days after Monday i.e Thursday.

4 How many liters of a 90%of concentrated acid needs to be mixed within a 75% solution of concentrated acid to get a 30 liter solution of 78% concentrated acid?

A. 8
B. 9
C. 7
D. 6

Answer:



Ratio of 90% & 75% solution is 1:4

x & $4x$

$x + 4x = 30$

$\Rightarrow \boxed{x = 6}$

5. 3 cars A, B & C are in the race. A is twice as likely to win as B and B is thrice as likely to win as C. what is probability that B will win, if only one can win the race?

A. ½
B. 2/5
C. 3/10
D. 1/10

Answer:

Let C's probability = C

B's probability = 3C

A's probability = 6C

6C + 3C + C = 1 (One of them would win)

C = 1/10, B's probability = 3C = 3/10

6. A cow & horse brought for Rs 2000. The Cow is sold at a profit of 20% and The horse is sold at a loss of 10% of the overall game is Rs.40. The cost price of the Cow is

A. 700
B. 800
C. 1200
D. 1300

Answer:

Let CP of Cow = x

CP of horse = $2000 - x$

Profit on Cow is 20% = $0.2x$

& loss on horse is 10% = $-0.1(2000 - x)$

$0.2x - (2000 - x)0.1 = 40$ (Net gain)

$0.3x = 240 \Rightarrow \boxed{x = 800}$

7 The sum of 3 consecutive numbers of the four numbers A, B, C, D are 4613,4961,5010,5099 then what is the largest number among A,B,C,D ?

A. 1948
B. 1463
C. 1601
D. 1550

Answer:

$A+B+C=4613$

$B+C+D=4961$

$A+C+D=5010$

$A+B+D=5099$

$3(A+B+C+D)=19683$

$\Rightarrow A+B+C+D=6561$

Now we know, $A+B+C=4613$ is smallest.

It will have smallest value among all values.

Largest values D is given

$6561-4613=1948$

8. George printing press can print an edition of newspapers in 12 hours while Paul's press can print the same edition in 18 hours. What is the total no. of hours the press working together but independent of one another to print the same edition?

A. 15
B. 17.4
C. 7
D. 7.2

Answer

$$\text{Time} = \frac{12 \times 18}{12+18} = 7.2 \text{ Hrs}$$

9 87th number in the series 2, 10, 26, 50.....

A. 26698
B. 12547
C. 12560
D. 29930

Answer:

2 10 26 50

8 16 24

2nd term $= 2+8=10$

3rd term $= 2+(8+16)=26$

4th term $= 2+(8+16+24)=50$

87th term $= 2+(8+16+24+\cdots \text{ 86th term})$

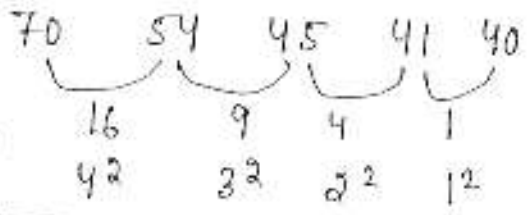
$= 2+8(1+2+3+4\cdots 86)$

$= 2+8\left(\frac{86(87)}{2}\right) = 29930$

10. 70, 54, 45, 41..... What is the next number in the given series?

A. 40
B. 85
C. 45
D. 42

Answer:



So next no. is 40

11. If the sum of the numbers in each row column, diagonal are same then find the value of (y+z)

V = 461	50	W = 415
196	X = 342	Y = 388
269	Z = 534	123

A. 958
B. 369
C. 922
D. 921

Answer:

$W + 50 + V = V + 196 + 269$

$W = 415$

$415 + Y + 123 = 196 + X + Y$

$X = 342$

$415 + 342 + 269 = V + 342 + 123$

$V = 461$

Sum of any row, column or diagonal is

$461 + 50 + 415 = 926$

$Y = 388$, $Z = 534$

$Y + Z = 388 + 534 = 922$

$Y + Z = 922$

12. If the sum of the numbers in each row column, diagonal are same then find the value of (y+Z)

V = 33	-16	W = 19
-2	X = 12	Y = 26
5	Z = 40	-9

A. 66
B. 76
C. 59
D. 56

Answer:

$V - 16 + W = V - 2 + 5$

$W = 19$

3rd Colouumn = 2nd row

$19 + Y - 9 = -2 + X + Y$

$X = 12$

One diagonal $= 5 + 12 + 19 = 36$

Other diagonal $= V + 12 - 9 = 36$

$\Rightarrow V = 33$

$-16 + 12 + Z = 36$

$Z = 40, \quad Y = 26$

$Y + Z = 40 + 26 = 66$.

13. In the simple subtraction problem below, sum single digits (not necessarily distinct) are replace by letters, find the value of 7*A + 7*B +6*C*D

$$\begin{array}{r} A\ 7\ C\ 2 \\ -\ 4\ B\ 6\ 8 \\ \hline 5\ 4\ 3\ D \end{array}$$

A. 77
B. 95
C. 84 subtraction
D. 70

Answer:

ADDITION

D = 0
C = 6
B = 6
A = 0

$7A + 7B + 6CD$

$= 7 \times 0 + 7 \times 6 + 6 \times 6 \times 0$

$= 42$

SUBTRACTION

D = 4
C = 0
B = 3
A = 9

$7 \times 9 + 7 \times 3 + 6 \times 0 \times 4$

$= 84$

This is when addition takes place

$$\begin{array}{r} A\ 7\ C\ 2 \\ +\ 4\ B\ 6\ 8 \\ \hline 5\ 4\ 3\ D \end{array}$$

14 How many polynomial functions f of degree >=1 satisfy $f(X^2) = (f(x))^2 = f(f(X))$.

A 1
B 0
C 2
D more than 2

Answer:

Zero

15. What is the remainder when 50! (50 factorial) is divided by 16^{15}

A. $2^{44} \times N/2^{60}$
B. $2^{47} \times N/2^{60}$
C. $2^{48} \times N/2^{60}$
D. $2^{46} \times N/2^{60}$

Answer:

In 50! max power of 2 is given by $\frac{50}{2} = 25$

$50! = 2^{47} \times N$ where N is product of all other

or expert $\left[\frac{25}{2}\right] = 12$

$\left[\frac{12}{2}\right] = 6$

$[6/2] = 3$

$[3/2] = 1$

47

$16^{15} = 2^{60} \Rightarrow$

Remainder = $\frac{2^{47} \times N}{2^{60}}$

16. 1, 5, 6, 25, 26, 30, 31, 125, 126, 130, 131, 150, 151, 155, 156 ... What is the value of 30th term in the given series?

A. 781
B. 3125
C. 776
D. 780

Answer:

$\frac{5}{2}$ $\frac{25}{4}$ $\frac{30}{6}$ $\frac{125}{8}$ $\frac{130}{10}$ $\frac{150}{12}$ $\frac{155}{14}$] Only multiple of 5 occur only e

$5 \times 5 = 25$ 4th term

$25 + 5 = 30$ 6th term

$25 \times 5 = 125$ 8th term) $125 + 5 = 130$ (10th term)

$30 \times 5 = 150$ (12th term) $150 + 5 = 155$ (14th term)

30th term should come after $155 \times 5 = 775$

$+ 5$

780 (30th term)

17. The climb from foot to top of a hill 800 meters, Jack can climb at l6 meters per minute and rests for two minutes or 20meters per 2 minutes and rest for one minute Paul can climb at 10 meters per one minute and rest for one minute or 16 meters per minute and rest for 2 minutes. if take has to reach the top in exactly two hours. What is the maximum number of rests that he can take?

A. 41
B. 42
C. 40
D. 43

Answer:

Jack can climb 16m in a cycle of 3min (one)
Jack can climb 20m in a cycle of 3min
He has to climb in 2hrs so second option to be considered. 20m → 3min x40
800m → 120min
But in 2nd option he takes rest after every 2min.
So total no. of times he will take rest is 40.

18. If the 20th term of an AP=560 and 30th term of AP=840 then what is the sum of 5th term and 40th term of the series.

A 1450
B. 1560
C. 1260
D. 1340

Answer:

$T_{20} = a + 19d = 560$
$T_{30} \quad a + 29d = 840$

$10d = 280$
$\Rightarrow d = 28$
$2a = 28$
$T_5 = a + 4d = 28 + 4 \times 28 = 140$
$T_{40} = a + 39d = 28 + 39 \times 28 = 1120$
$1120 + 140 = 1260$

19. Raj tossed 3 dices and there results are noted down then what is the probability that raj gets 10?

A. 1/72
B. 1/9
C. 25/216
D. 1/8

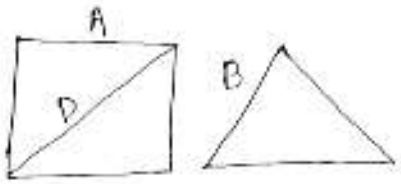
Answer:

When 3 dice are rolled the number of ways of getting n (where n is the sum of faces on dice)
$= (n-1)C_2$ where $n = 3$ to 8
$= 25$ where $n = 9, 12 = 27$ where $n = 10, 11$
$= (20-n)C_2$ where $n = 13$ to 18
The required Probability $= 27/6^3 = 27/216 = 1/8$

20. The diagonal of a square is twice the side, of equilateral triangle the ratio of Area of the Triangle to the Area of Square is?

A. √3:8
B. √2:5
C. √3:6
D. √2:4

Answer:



$D = A\sqrt{2}$ $\quad A = D/\sqrt{2}$

$\text{Area} = A^2 = D^2/2$

$D = 2B \Rightarrow B = D/2 = \frac{A\sqrt{2}}{2} = A/\sqrt{2}$

$\text{Area of } \Delta = \sqrt{3}/4\, B^2 = \sqrt{3}/4 \times A^2/2 = \frac{A^2\sqrt{3}}{8}$

$\text{Ratio of } \Delta : \square = \frac{A^2\sqrt{3}}{8} : A^2 = \boxed{\sqrt{3} : 8}$

21. Apple costs L rupees per kilogram for first 30kgs and Q rupees per kilogram for each additional kilogram. If the price of 33 kilograms is 11.67 and for 36kgs of Apples is 12.48 the cost of first 10 kgs of Apples is?

A. 3.50
B. 10.53
C. 1.17
D. 2.8
E. 3.61

Answer:

$30L + 3Q = 11.67$ —— A

$30L + 6Q = 12.48$ —— B

$B - A \Rightarrow 3Q = 0.81$

$Q = 0.27$

From A → $30L = 10.83$

$\Rightarrow \boxed{10L = 3.61}$

22. 1,2,2,3,3,3,4,4,4,4,1,1,2,2,2,2,3,3,3,3,3,3,4,4,4,4,4,4,4,4,.....

Then what is the 2532 position of the number in the sequence?

A. 2
B. 1
C. 3
D. 4

Answer:

Every sequence in cycle will have 10, 20, 30, 40 & Sum no. of terms.

We have to reach 2532 terms

$10 + 20 + 30 \ldots\ldots n \text{ terms} = 10(1 + 2 + 3 \ldots n \text{ terms})$

If n is 22 sum is 2530

So, next term 2531 & 2532 will be 1.

23. 1,2,2,3,3,3,4,4,4,4,1,1,2,2,2,2,3,3,3,3,3,3,4,4,4,4,4,4,4,4.....

Then what is the 2332 position of the number in the sequence?

[A. 2]
B. 1
C. 3
D. 4

Answer:

Reaching 2332 terms

$10+20+30\cdots n$ terms $= 10(1+2+3\cdots n$ terms$)$

If n is 21 sum is 2310

i.e there will be 21 1's and the 2's will start.

$2310+21=2331$

Next 2332 from where 2 will start.

24. How many 7's are there between 0 to 400?

A. 40 times
B. 50 times
[C. 80 times]
D. 20 times

Answer: There are 20 occurance of any digit in 1st 100 no.s except 0.

$0-100 \rightarrow 20$

$101-200 \rightarrow 20$

$201-300 \rightarrow 20$

$301-400 \rightarrow 20$

$\therefore$ total $\rightarrow$ [80 times]

25. The letters in the word ABUSER are permuted in all possible ways and Arranged in alphabetical order then find the word at position 49 in the Permuted alphabetical order?

A. ARBSEU
[B. ARBESU]
C. ARBSUE
D. ARBEUS

Answer:

1st series [A] [B] ... $4!=24$ words

2nd series [A] [E] ... $4!=24$ words

48 words done

49th No. is 1st in third series

[A] [E] B E S U $\rightarrow$ 49th word.

26. The letters in the word TALION are permuted in all possible ways and arranged in alphabetical order then find the word at position33 in the permuted alphabetical order?

A. ALNOIT
B. ANLOIT
C. AOLNIT
D. AIOLNT

Answer:

The alphabetic order is A, I, L, N, O, T

No. of words with A as first A - - - - - $L5 = 120$

1st → [A] [I] . . . . $L4 = 24$

→ [A] [L] [I] . . . $L3 = 6$

30

31st ALNIOT

32nd ALNITO

33rd ALNOIT (Ans)

27. The Letters in the word SHOVEL are p m 'in all possible ways and arranged in alphabetical order then find the word at position 31 in the permuted alphabetical! Order ?

A. ELOHSV
B. EOLHSV
C. ELHOSV
D. EVSOHL

Answer:

1st Series [E] [H] . . . . $L4 = 24$

2nd Series [E] [L] . . . . $L3 = 6$

30

∴ Next 31st words = ELOHSV

28. 15 students join a summer course . Every day 3 students are on duty after school to clean the clean the classrooms. After the course, it was found that every pair of students has been on duty exactly once. How many days does the course last for?

A 35
B 45
C. 105
D. None of these

Answer

Let there are 15 students (A - O)

AB (13 ways) = 13 paired AB with other Students

CD (11 ways) = 11

EF (9 ways) = 9

GH (7 ways) = 7

13 + 11 + 9 + 7 . . . . + 1 = 49

29. Consider all permutations (i.e., arrangements) of digits 1, 2 & 3. We will say that a hit has been scored if at least one digit occurs in its proper position in the permutation. If 1 (one) occurs in the first position or 2 in the second position or 3(three) in the 3rd position in how many ways of these permutations is a hit scored?

A. 4
B. 1
C. 2
D. 3

Answer:

Total ways = $\lfloor 3 = 6$

total way in which all will go in wrong place.

$\lfloor 3 \left(1 - \frac{1}{\lfloor 1} + \frac{1}{\lfloor 2} - \frac{1}{\lfloor 3}\right) = 2$

No. of hits = $6 - 2 = 4$

30. If the word MONOS is permuted then the probability that O's never come Together?

A. 2/5
B. 1/5
C. 3/5
D. 2/5

Answer:

Total arrangements = $\frac{\lfloor 5}{\lfloor 2} = 60$

Total arrangements in which O's are never together

$60 - \lfloor 4 = 60 - 24 = 36$

$P(R) = 36/60 = 3/5$

31. MARKED PRICE OF AN ITEM IS 60% OF its MRP. A PERSON BUYS THE ITEM AT HALF OF IT'S MARKED PRICE.HOW MANY PERCENTAGE DISCOUNT IS GIVEN??

A. 70%
B. 40%
C. 20%
D. 21%

Answer:

Let MRP be P.

Marked Price = $0.6P = 3/5 P$

CP for the item was = $1/2$ MP = $3/10 P$

% discount is $\frac{P - 3/10 P}{P} \times 100$

$= 70\%$.

32. INITIAL PRICE OF SCOOTER IS 40,000 AND IT IS REDUCED TO 3/4TH OF IT'S PREVIOUS PRICE EVERY YEAR.WHAT WILL BE THE PRICE AFTER 3 YEARS?

A. 16,865/-
B. 16,875/-
C. 12,500/-
D. 10,000/-

Answer:

1 Year later = $40,000 \times 3/4$

2 year later = $40,000 \times (3/4)^2$

3 year later = $40,000 \times (3/4)^3$

$= 27 \times 625$

$= 16,875/-$

33. if a+b+c+d+e=fg such that a,b,c, d, e are distinct numbers, for fg to be the maximum possible value. What is the *value g be??*

A. √(a+b+c+d+e)
B. √(a-b-c-d-e)
C. None of these
D. √(a.b.c.d.e)

Answer:

For fg to be max $\Rightarrow f = g$

$fg = g^2 = a+b+c+d+e$

$\Rightarrow g = \sqrt{a+b+c+d+e}$

34. A man travels 20 km on foot at 5 kmph and another 10 km by bus at 20 kmph. What is his average speed?

A. 5 kmph
B. 6 kmph
C. 6.67 kmph
D. 8 kmph

Answer:

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}}$$

$$= \frac{20+10}{20/5 + 10/20} = \frac{30}{4+1/2} = 6.67 \text{ Km/hr}$$

35. 32^32^32 if divided by 7.what will be the remainder?

A. 1
B. 6
C. 0
D. 3

Answer:

$$32^{32^{32}} = \frac{(28+4)^{32^{32}}}{7} = \frac{4^{32^{32}}}{7}$$

possible remainder when divided by 7 are 4, 2, 1. Out of which 1 is among the options.