Mock Test Number: 0103

1. Average of 11 is 50. Average of first six results is 49. Last six results are 52. Find the sixth result.

A. 56
B. 54
C. 55
D. 57

Ans: A
Explanation:

The sum of 11 results = 11x50 = 550
The sum of first 6 results = 6x49 = 294
The sum of last 6 results = 6x52 = 312
Sixth results = 294+312-550 = 56

2. Raj tossed three dice. What is the probability Raj gets the sum as 10?

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

Ans: C
Explanation:

Always remember when 3 dice are rolled the number of ways of getting n (where n is the sum of faces on dice)
= $(n-1)C2$ where n = 3 to 8
= 25 where n = 9, 12
= 27 where n = 10, 11
= $(20-n)C2$ where n = 13 to 18
The required probability = 2763 = 27/216=1/8

3. Sequence 1, -2, 3, -4, 5, -6. What is the average of first 20 term of the sequence?

A. -1
B. 0.5
C. 0
D. -0.5

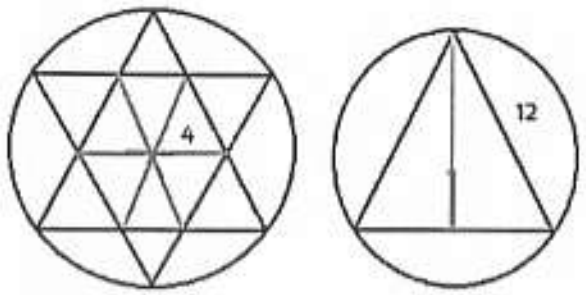
Ans: D

$= \frac{2\cdot 20-1}{2} - \frac{2\cdot 20}{2} = \frac{39-40}{2} = -1/2 = -0.5$

4. Two equilateral triangle of side 12cm. 6 vertices lie on the circle. What is the area that enclosed by the star?

A. 83
B. 57
C. 61
D. 68

Ans: D
Explanation:
Given that two equilateral triangles of length 12 has inscribed in a circle.



Altitude of the triangle = $3\sqrt{2}a = 3\sqrt{2}(12) = 63\sqrt{}$
We know that centroid divides the altitude in the ratio 2 : 1 and 23(Altitude) = Circum radius
Circum radius = $23(63\sqrt{})=43\sqrt{}$
Area of the circle = $\pi r2=3.14\times(43\sqrt{})2$
Now the two triangles in the circle forms 12 small equilateral triangles with side 4. So their total area = $12\times3\sqrt{}4a2 = 12\times3\sqrt{}442$
Area which is not covered by the equilateral triangles = $3.14\times(43\sqrt{})2 - 12\times3\sqrt{}442 = 67.65 \simeq 68$

5. Raju can do work 10 days. Vicky can do work 12 days. Tinku can do work 15 days. Raju leaves 2 days. Vicky leaves 3 days before the work. In how many days is the work completed?

A. 5
B. 9
C. 6
D. 7

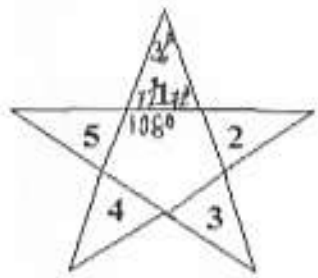
For one day raju = 1/10, vicky = 1/12, tinku = 1/15.
So all together in one day is 1/4. So for 2 days it is = 1/2
According to question raju leaves & the remaining work is 1 - 1/2 = 1/2,
now tinku & vicky can do together & can do one work in 60/9 days.
So half work can be done in 60/18 = 10/3 days.
So for one day work done is 3/10 So for 3 days 9/10 is done.
and vicky leaves remaining work is 1/10,
which is done by tinku for 1 day 1/15 work is done,

For doing 1/10 = 1.5 days.

So total num of days is

2 + 3 + 1.5 = 7 (approx.)

6. There are 5 sharp angles in a star shown bellow numbered 1 to 5. How many degrees is the total of all 5 sharp angles?



A. 270
B. 120
C. 360
D. 180

Ans: D

Explanation: Sum of interior angles = (No. of Sides - 2) × 180°
for a 5-sided polygon = (5 - 2) × 180° = 3 × 180° = 540°
Since all 5 angles of a regular pentagon are equal,
each, = 540°/5 = 108°
180° - 108° = 72° → base angles of an isosceles triangle.
other base angle 72° also.
72° + 72° = 144°, 180° - 144° = 36°
The sum of the points of interior angles = 5 × 36° = 180°

7. What is the number of ways of expressing 270000 as a product of 3 ordered positive integers?

A. 150
B. 648
C. 2250
D. 6615

Ans:

Explanation:

8. How many number plates can be made if three plates have two letter of english alphabate followed by a 2 digit number, if repetation is not allowed?

A. 52500
C. 56800
B. 58500
D. 56500

Ans: B

$$^{26}P_2 * {}^{10}P_2 = \frac{26!}{24!} * \frac{10!}{8!} = 58500$$

9. 0, 1, 3, 4, 9, 10, 12, 13, 27, ...Value of term no. 38?

A. 256
C. 270
B. 253
D. 255

Ans: 0, 1, 3, 4, 9, 10, 12, 13, 27, 28, 30, 31, 36, 37, 39, 40, 81, 82, 84, 85, 90, 91, 93, 94, 108, 109, 111, 112, 117, 118, 120, 121, 243, 244, 246, 247, 252, 253

10. Which term does not belong to series?

2, 9, 28, 65, 126, 216, 344

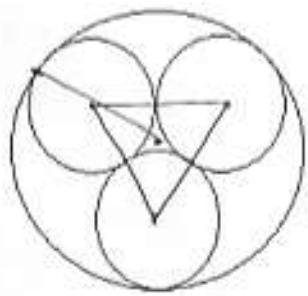
A. 216
C. 28
B. 9
D. 65

Ans: A

2 9 28 65 126 216 344

1^3+1 2^3+1 3^3+1 4^3+1 5^3+1 6^3 7^3+1

11. Circle circumscribes 3 unit circles towards each other. What is the area of larger circle? π = 3.14154265



A. $\Pi(7+4\sqrt{3})/3$
C. $\Pi(7+4\sqrt{3})/3$
B. $\Pi(5+2\sqrt{3})/3$
D. $\Pi(5+2\sqrt{3})/3$

By joining centres of 3 unit circles, we will get an equilateral triangle of length 2 unit.

Center of the equilateral triangle will be the center of the big circle. So radius of the ~~equilateral triangle~~ big circle will be = (1 + circum radius of the equilateral triangle).

Circum radius of equilateral triangle $= 2/3 \times \sqrt{3}/2 \times 2 = 2/\sqrt{3}$

Area of big circle will be $= \pi r^2$

$= 3.14 \times (1 + 2/\sqrt{3})^2 = \pi \times (1 + 4/3 + 4/\sqrt{3}) = \pi \times \left(\frac{7 + 4\sqrt{3}}{3}\right)$

12. 14 digits of credit card written in boxes. Sum of every three consecutive digits is 18. Find the value of X.

A	B	C	7	B	C	A	X	C	A	B	8	A	B

A. 2
B. 1
C. 3
D. Cannot determine

Ans: C

The digits must be in a cycle of length 3:

So A = 7, C = 8 and X = B = 3

13. 12 divides ab313 ab. Smallest value of a + b is

A. 4
B. 2
C. 6
D. 7

Ans: D

If a number is divisible by 12, then it should be divisible by 4 & 3.

7 can be written as 5 + 2.

a = 5, b = 2

∴ So we get 5231352, it is divisible by 12.

14. Merchant buys 20 Kg of wheat at Rs. 30 /Kg, & 40 Kg wheat at Rs. 25.00 /Kg. Mix them. Sells one third mixture at Rs. 26.00 /Kg. Remaining price for 25% profit of whole outlay?

A. Rs. 37
B. Rs. 40
C. Rs. 30
D. Rs. 360

Ans: A

Total CP = 20 * 30 + 40 * 25 = 1600

SP = 125/100 * 1600 = 2000

SP for 20kg mix = 26 * 20 = 520

Rem SP = 2000 − 520 = 1480

SP r's for 40kg = 1480/40 = Rs 37

15. Esha bought 2 varities of rice costing 1 Kg per Rs 50 rice & 1 Kg per Rs 60 rice, mixed them in some ratio. Then she sold the mixture at Rs 70 making profit of 20%. What was the ratio of the mixture?

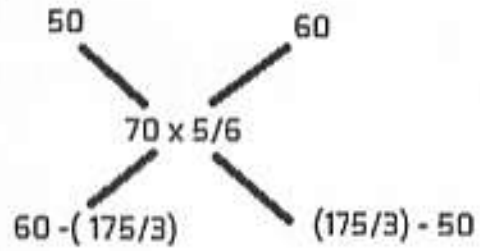
A. 3:8
B. 2:7
C. 1:5
D. 1:10

Ans: C

Explanation:
Selling price of the mixture = 70 and profit = 20%

Cost price of the mixture = 70×100120=70×56

By applying alligation rule:



So ratio = 60−1753:1753−50 = 1: 5

16. In the magic square the sum of number in each row, column, diganal are same. Value of

Y + Z?

V	71	W 541
259	X	Y
353	Z 823	165

A. 1458
B. 1082
C. 1552
D. 894

Ans:A Y + Z = 2V

V + 71 + W = 621 + V ⇒ 71 + W = 612 ⇒ W = 541

$353 + 541 + X = 71 + X + Z$

$\Rightarrow 894 + X = 71 + X + Z$

$\Rightarrow Z = 823$

$353 + 823 + 165 = 1341$

$Y = 1341 - (541 + 165) = 635$

$\boxed{Y + Z = 823 + 635 = 1458}$

17. 8 + 88 + 888 + ... + 88 ... 8888. 24 times. Last term consists of 8, 24 times. Find three last digit of the abovesum

A. 332
B. 532
C. 432
D. 632

Ans: D

$24 * 8 = 192$. So unit place = 2

$23 * 8 + 19 = 203$. So tenth place = 3

$22 * 8 + 20 = 196$. So hundredth place = 6

∴ So last three digit = 632

18. 24 men & 16 women wage Rs 11600 per day. Half the no. of men & women earns same money. Daily wage paid to each man is

A. 350
B. 400
C. 325
D. 355

Ans: A

Explanation:

24m + 16w = 11600

12m + 37 w = 11600

Solving we get 12 m = 21w

Substituting in the first equation we get, 42w + 16 w = 11600 w = 200 M = 350

19. Probability that a leap year has 53 Sunday?

A. 1/49
B. 3/7
C. 1/7
D. 2/7

Ans: D

Explanation:
A leap year has 366 days, therefore 52 weeks i.e. 52 Sunday and 2 days.

The remaining 2 days may be any of the following :

(i) Sunday and Monday

(ii) Monday and Tuesday

(iii) Tuesday and Wednesday

(iv) Wednesday and Thursday

(v) Thursday and Friday

(vi) Friday and Saturday

(vii) Saturday and Sunday

For having 53 Sundays in a year, one of the remaining 2 days must be a Sunday.

n(S) = 7

n(E) = 2

P(E) = n(E) / n(S) = 2 / 7

20. In 4 examiners can examine a cirtain number of answer books in 8 days by working 5 hours a day, for how many hours a day would 2 examiners have to work in order to examine twice the number of answer book in 20 days.

A. 9
B. 6
C. 8
D. 7.5

Ans: C

Persons Hrs work
4 5X8 = 40hrs 1

So 2 persons will consume 40 x (4/2) = 80 hrs for 1 work.
Now, 2 persons will need 2 x 80 hrs = 160 hrs for 2 work.
So number of work hrs required for 20 days are 160 hrs.
So each day they will work for 160/20 = 8hrs per day.

21. Sum of 4 consecutive 2-digit odd numbers, when divided by 10, becomes a perfect square. Which of the following can possibly be one of these 4 numbers.

A. 67
B. 25
C. 41
D. 31

Ans: C

Explanation:

Let the 4 odd integers be of the form 2n-3, 2n-1, 2n+1, 2n+3. Then the sum = 8n. divide it with 10 and you get 4n/5.

From the question, 4n/5 = Square of a number X

Since 4 is a square of a number, n/5 should also be a square of a number i.e n/5 = a^2 (where a is an integer)

n = 5 * a^2

Substitute

a = 1, n = 5, 2n-3 = 7, 2n-1 = 9, 2n+1 = 11, 2n+3 =13
a = 2, n = 20, 2n-3 = 37, 2n-1 = 39, 2n+1 = 41, 2n+3 = 43
a = 3, n = 45, 2n-3 = 87, 2n-1 = 89, 2n+1 = 91, 2n+3 = 93

so the answer is 41, Option C

22. A owns B Rs 50. He agrees to pay B over a number of consecutive days starting on a non paying single note of Rs 10 or Rs 20 on each day. In how many different ways can A repay B?

A. 5
B. 6
C. 7
[D. 8]

Ans: C
Explanation:
He can pay by all 10 rupee notes = 1 way
3 Ten rupee + 1 twenty rupee = 4!3!×1! = 4 ways
1 Ten rupee + 2 twenty rupee notes = 3!2!×1! = 3 ways
Total ways = 1 + 4 + 3 = 8

23. A student select 3 digits from numbers 1 to 9. Such that they are in strictly increasing in order. How many selection have the property that the 3 digits from an A.P.?

A. 7
[B. 16]
C. 12
D. 14

Ans: B

123, 234, 345, 456, 567, 678, 789 (common difference of 1)
135, 246, 357, 468, 579 (common difference of 2)
147, 258, 369 (common difference of 3)
159 (common difference of 4)
Total [16 Selections.]

24. $a x^4 - b x^2 + x + 5$
$f(-3) = 3\ f(3) = f(x)\ ax^2 + bx^2 + x + 5$. What is the value of f(-3)?

A. 3
[B. 8]

C. 1
Ans: B

D. -2

25. Find the number of all 4 digit number that can be formed using 0, 1, 2, 3 with no digit being repeated in any number. Note that a number bebining with 0 is not a 4 digit number.

A. 38742
B. 42786
C. 38684
D. 34533

Ans:C

26. Arun makes ice-cream of rectangular shape of l = 6 cm, w = 5 cm & 2 cm thick, 2 company reduce volume by 19%. Thickness will remain same. L & W will decreased by same %. What is the new width?

A. 6.5
B. 5.5
C. 7.5
D. 4.5

Ans: D

Since volume decrease by 19%.
So, new vol. = 60 − (60*19)/100 = 48.6
let length decrease by x%.
So, now (6 − 6x/100) * (5 − 5x/100) * 2 = 48.6
Solving this we get two values of x, i.e. x = 190, 10
So, 190 can not be so? So required is 10%.
So, new width is 5 − 5*10/100 = 4.5.

27. According to the stock policy of a company, each employee in the technical division is given 15 shares of the company and each employee in the recruitment division is given 10 shares. Employees belonging to both Communities get 25 shares each. There are 20 employees in the company and each one belongs to at least one division. The cost of each

share is $10. If the technical division 15 employees and the recruitment division have 10 employees, then what is the total cost of the shares given by the company?

A. 3120
B. 3250
C. 2650
D. 3180

Let no of employees that are in both the division be x

So no of employees only in technical division will be 15-x

and that in recruitment division will be 10-x

So, Total cost = (15-x) 150 + (10-x) 100 + 250 x = 3250

28. Determine the number of ways to distribute 10 (indistinguishable) orange drinks, 1 lemon drink, and 1 lime drink to four thirsty students such so that each student gets at least one drink, and the lemon and lime drinks go to different students.

A. 1245
B. 1980
C. 1999
D. 1867

Ans:B

first we have give 1 lemon and 1 lime drink to 2 distinct persons.
For this 1st we have select 2 out of 4 persons in 4c2 ways and arrange in 2! ways
Then for satisfying the condition of at least one, give 2 orange drinks of rem 2 people in 1 way(since identical).
now we have 8 orange drinks to be distributed it to 4 drinks.
for this we can use the formula (n+r-1)c(r-1) where n=8 and r=4
Hence the final ans is (8+4-1)c(4-1)*4c2*2!=1980.

29. A power unit is there by the bank of a river of 900 meters. A cable is made from power unit to power a plant opposite to that of the river of 2000mts. The cost of the cable below water is Rs. 5/- per meter and cost of cable on the bank is Rs. 4/- per meter. Then find out the amount to be invested to connect those two stations?

A. 8900
B. 9800
C. 7865
D. 8987

Ans: A

Required length of wire = 2000 mts

Cost of cable below water = 900 * 5 = 4500

Cost of cable on the bank of river = (2000-900)*4 = 4400

Total cost = 4500 + 4400 = 8900

30. A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

A. 4320
B. 1260
C. 1675
D. 1543

Ans: B
We can select the 5 member team out of the 10 in $^{10}C_5$ ways = 252 ways
The captain can be selected from amongst the remaining 5 players in 5 ways.
Therefore, total ways the selection of 5 players & a captain can be made = 252 * 5 = 1260.

31. In a circular racetrack of length 100 m, three persons A, B and C start together. A and B start in the same direction at speeds of 10 m/s and 8 m/s respectively. While C runs in the opposite at 15 m/s. When will all the three meet for the first time after the start?

A. 167
B. 120
C. 100
D. 128

Ans: C
Since the track is a circular track A & B will meet every 50 secs (i.e 100/(10-8))
Since multiple of 50, they will be meeting at the starting point every 50 secs. If we multiply 15 X 50, we will get 750 & after the second 50 it will be 1500.
All of them will meet at the starting point after 100s.

32. My flight takes off at 2 AM from a place at 18N 10E and landed 10 Hrs later at a place with coordinates 36N 70W. What is the local time when my plane landed?

A. 6:40am
B. 5:50pm
C. 6:00am
D. 6:05pm

Ans:A Total change in degrees in E-W dirn = 70 + 10 degrees = 80 degrees.
Time change due to the change in longitude = 80 * 4 = 320 mins = 5hrs 20mins.
According to the person the time would have been = 2am + 10hrs = 12am. But according to the local time the time would be = 12 - 5:20 = 6:40am.

33. The cost of one pencil, two pens and four erasers is Rs.22 while the cost of five pencils, four pens and two erasers is Rs.32. How much will three pencils, three pens and three erasers cost?

A. 29
B. 27
C. 30
D. 31

Ans: B

$x + 2y + 4z = 22$ ——(1)

$5x + 4y + 2z = 32$ ——(2)

Multiply equn(2) by 2 & subtract from equn(1) dividing by 3,

we get $3x + 2y = 14$ ——(3)

Multiplying equn(1) by 5 and subtracting equn(2), then divided by 6,

we get $y + 3z = 13$ ——(4)

Adding equn(3) & (4), we get $3x + 3y + 3z = 27$

34. On a certain island, 5% of the 10000 inhabitants are one-legged and half of the others go barefooted. What is the least number of Shoes needed in the island?

A. 11234
C. 11156
B. 10000
D. 10097

Ans: B

One-Legged = 5% of 10,000 = 500

remaining = 10000 − 500 = 9500

barefooted = 9500/2 = 4750

remaining people = 9500 − 4750 = 4750

∴ hence required number of shoes = 4750 * 2 + 500 * 1 = 10,000

35. There are 5 boxes in a cargo. The weight of the 1st box is 200 KG, the weight of the 2nd box is 20% higher than the third box, whose weight is 25% higher than the 1st box weight. The 4th box which weighs 350 KG is 30% lighter than the 5th box. Find the difference in average weight of the 4 heaviest boxes and the four lightest boxes.

A. 75
C. 78
B. 67
D. 72

Ans: A

Weight of 1st box = 200

weight of 3rd box = (125/100) * 200 = 250

weight of 2nd box = (120/100) * 250 = 300

weight of 4th box = 350

weight of 5th box = (10/7) * 350 = 500

Average of 4 highest weighted boxes

$= (500 + 350 + 300 + 250)/4 = 350$

average of 4 leghter boxes $= (350 + 300 + 250 + 200)/4 = 275$

Therefore, difference $= 350 - 275 = 75$