Mock Test Number: 007

1. In 2003 there are 28 days in February and 365 days in a year in 2004 there are 29 days in February and 366 days in the year. If the date march 11 2003 is Tuesday, then which one of the following would the date march 11 2004 would be?

   A. Sunday
   B. Monday
   C. Thursday
   D. None of these

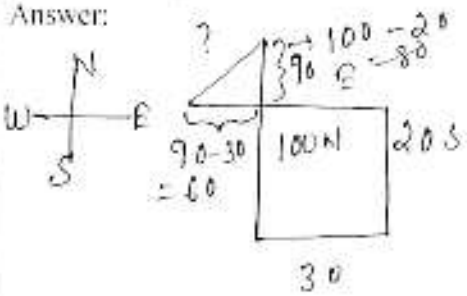
Answer: In a leap year, there are 2 odd days,

$\left[\left(\frac{366}{7}\right)=2\right]$ So, the date 11th march 2004 would be Tuesday +2 = Thursday.

2. A child was looking for his father. He went 90 mts in the east before turning to his right. He went 20 mts before turning to his right again to look for his father to his uncles place 30 mts from this point his father was not there. From here he went 100 mts to the north before meeting his father in the street how far did the son meet his father from the starting point?

   A. 100 m
   B. 120 m
   C. 130 m
   D. None of these

Answer:



Distance

$=\sqrt{60^2+80^2}$

$=\sqrt{3600+6400}$

$=\sqrt{10000}$

$=100\text{m}$

3. What is the largest positive integer n for which 3^n divides 44^44?

   A. 0
   B. 1
   C. 2
   D. None of these

Answer:

$\frac{44^{44}}{3^n}$

As 44 doesn't have any factor of 3, 44^{44} will also not be devisible by 3. So the value of n can only be 0. (But it's not a positive integer)

4. A snail covered 3mm in the first sec and 4 mm each in each successive sec, for a certain number of sec. However if it had covered 1mm in the 1st sec and 8 mm more in each successive sec for some secs, then the difference between the length of the path it would have covered during the same time and the actual path that it actually took would have been more than 6 mm but less than 30 mm. find the time for which the snail moved?

A. 3,5,6,2,1
B. 7,2,5,6,1
C. 3,4,5,6,7
D. None of these

Answer:

Original Path: $3+(t-1)4 = 4t-1$ (considering the snail moved for t secs)

New Path: $1+(t-1)9 = 9t-8$

Diff. bet° New & Old: $(9t-8)-(4t-1)$

$= 5t-7$

$6 < 5t-7 < 30 \Rightarrow 2.6 < t < 7.4$

So, $t = 3,4,5,6,7$

5. How many positive integers less than 500 can be formed using the numbers 1, 2, 3, and 5 for digits, each digit being used only once.

A. 1,2,3
B. 5,6,7
C. 1,8,9
D. None of these

Answer:

Single digit numbers = 1 or 2 or 3 or 5 = 4

Double digit- number = $4 \times 3 = 12$

Three digit- numbers = $3 \times 3 \times 2 = 18$

34

Can be filled in 3 ways (1,2 or 3)

6. A circular swimming pool is surrounded by a concrete wall 4 feet wide. if the area of the wall is 11/25 of the area of the pool, then the radius of the pool in feet is?

A. 20
B. 30
C. 40
D. 60

Answer:

Area of pool = πR^2

Area of wall = $\pi[(r+4)^2 - r^2]$

$= \frac{\pi}{25} \pi r^2$

From here $r = 20$

Alt. method

$R = r+4$ — (1)

$\pi(R^2 - r^2) = \pi r^2 \times \frac{11}{25}$

$\frac{R}{r} = \frac{6}{5}$ — (2)

From (1) & (2)

$r = 20$

7. A survey of n people in the town of badaville found that 50% of them prefer brand A. another survey of a100 people in the town of chottaville found that 60% prefer brand A. In total 55% of all the people surveyed together prefer Brand A. What is the total number of people surveyed?

[A. 200]
B. 300
C. 400
D. 500

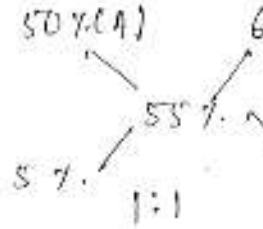
Answer:

$0.5n + 0.6 \times 100 = 0.55 \times (100 + n)$

$\Rightarrow n = 100$

So a total no. of 200 people were surveyed.

Alternative method :-



i.e Ratio of no. of people should be 1:1 from both cities.

∴ 100 from each a total of 200.

8. The savings of employee equals income minus expenditure. If the income of A,B,C are in the ratio 1:2:3 and their expense ratio 3:2:1 then what is the order of the employees in increasing order of their size of their savings?

[A. ABC]
B. BCA
C. CBA
D. None of these

Answer:

From here, just by observation, it is clear that- A saves the least- followed by B and then C.

So the order is [ABC].

9. One day Eesha started 30 min late from home and reached her office 50 min late while driving 25% slower than her usual speed. How much time in min does eesha usually take to reach her office from home?

[A. 60 min]
B. 20 min
C. 30 min
D. None of these

Answer:

If Esha had travelled by her usual speed, She would have been 30min late. But she got- delayed by 50min, i.e. 20min extra.

If her speed is 25% slower $\Rightarrow S_{new} = 3/4$ Sold

$\Rightarrow T_{New} = 4/3\ T_{old} \Rightarrow \frac{4}{3} T_{old} - T_{old} = 20 \Rightarrow$ [$T_{old} = 60$min]

10. In the simple subtraction problem below some single digits are replaced by letters .Fined the value of 7A+5D+6CD?

A5C5
-1B87

674D

A. 240
B. 780
C. 652
D. 120

Answer: Here $15-7=D \Rightarrow D=8$ (left most column) $4+10-B=7 \Rightarrow B=7$ (3rd column)

$(C-1)+10-8=4 \Rightarrow C=3$ (2nd column)

(reduced by 1 by giving carry to 5 on the right) (taking carry from 5 on the left).

$A+1=6 \Rightarrow A=8$ (4th column)

So, $7A+5D+6CD$
$=7\times8+5\times8+6\times38$
$=240$

11. Two full tanks one shaped like the cylinder and the other like a cone contain liquid fuel the cylindrical tank held 500 lts more than the canonical tank After 200 lts of fuel is pumped out from each tank the cylindrical tank now contains twice the amount of fuel in the canonical tank How many lts of fuel did the cylindrical tank have when it was full?

A. 1200
B. 1400
C. 1300
D. None of these

Answer: $V_{cyl}=V+500$ & $V_{cone}=V$

After 200l is pumped out, new volume is $V_{cyl}=V+300$

$V_{cone}^{2}=V-200$

So, $V+300=2(V-200) \Rightarrow V=700$

$\therefore V_{cyl}=700+500=1200$

12. A shop sells chocolates It is used to sell chocolates for Rs.2 each but there were no sales at that price. When it reduced the price all the chocolates sold out enabling the shopkeeper to realize Rs 164.90 from the chocolates alone If the new price was not less than half the original price quoted How many chocolates were sold?

A. 95
B. 96
C. 97
D. 98

Answer: $164.9=97\times1.7=9.7\times17$

So, either 97 chocolates are sold at Re 1.7/-
or 17 chocolates are sold at Re 9.7.
So, clearly 97×1.7 is the right choice.

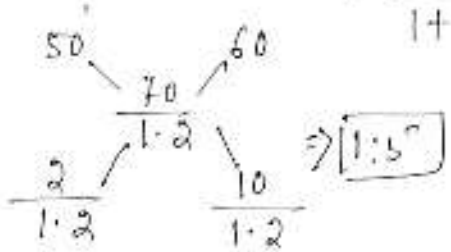
13. Eesha bought two verities of rice costing 50Rs per kg and 60 Rs per kg and mixed them in some ratio. Then she sold that mixture at 70 Rs per kg making a profit of 20 % What was the ratio of the mixture?

A. 1:6
B. 1:20
C. 1:5
D. 1:9

Answer:

SP = 70 Profit = 20%.

$\therefore CP = \frac{70}{1+20/100} = \frac{70}{1.2}$



14. In a horse racing competition there were 18 numbered 1 to 18.The organizers assigned a probability of winning the race to each horse based on horses health and training the probability that horse one would win is 1/7, that 2 would win is 1/8, and that 3 would win is 1/7.Assuming that tie is impossible Find the chance that one of these three will win the race?

A. 15/49
B. 22/49
C. 20/25
D. None of these

Answer:

P(A win) = 1/7 P(A not win) = 6/7
P(B win) = 1/8 P(B not win) = 7/8
P(C win) = 1/7 P(C not win) = 6/7

The chance of anyone of these three horses winning the race will be:

= (A win, B & C not win) + (B win & C & A not win) + (C win & A & B not win)

$= (1/7 + 7/8 + 6/7) + (1/8 + 6/7 + 6/7) + (1/7 + 6/7 + 7/8)$

$= 15/49$

15. Given that 0<a<b<c<d which of the following is largest?

A. a
B. b
C. data insufficient
D. none of these

Answer:

Data Ignored

16. If 5+3+2=151022, 9+2+4=183652, then 7+2+5=?

A. 143547
B. 143640
C. 152465
D. None Of these

Answer:

$5+3+2 = 15$ (5×3, 5×2, 15|10-3) $= 15\ 10\ 22$

Similarly, $9+2+4 = 18\ 36\ 52$ (9×2, 9×4, 18+36-2)

So, $7+2+5 = 14\ 35\ 47$ (7×2, 7×5, 14+35-2)

17. An organization has three committees. Only two persons are members of all three committees, but every pair of committees has three members in common. What is the LEAST possible number of the members on any one committee?

A. 4
B. 5
C. 9
D. 10

Answer:

C_1	C_2	C_3
ABCD	ABCE	ABDE

So, least no. of people is 4

18. A farmer has a rose garden. Every day he either plucks 7 or 6 or 24 or 23 roses. The rose plants are intelligent and when the farmer plucks these numbers of roses, the next day 37 or 36 or 9 or 18 new roses bloom in the garden respectively. On Monday, he counts 189 roses in the garden. He plucks the roses as per his plan on consecutive days and the new roses bloom as per intelligence of the plants mentioned above. After some days which of the following can be the number of roses in the garden?

A. 5
B. 10
C. 15
D. 20

Answer:

If N roses are there to start with, the following changes may occur, $-7+37 = +30$

or $-6+36 = +30$ or $-24+9 = -15$ or $-23+18 = -5$

So, the difference will always be a multiple of 5.

19. There are 5 sweets – Jumun, Kulfi, Peda, Laddu and Jilabi that I wish to eat on 5 consecutive days – Monday through Friday, one sweet a day, based on the following self imposed constraints:
1)Laddu is not eaten on Monday
2)If Jamun is eaten on Monday, then Laddu must be eaten on Friday
3)If Laddu is eaten on Tuesday, Kulfi should be eaten on Monday
4)Peda is eaten the day following the day of eating Jilabi

Based on the above, peda can be eaten on any day except?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday

Answer:

MONDAY

20. If f(1)=4 and f(x+y)=f(x)+f(y)+7xy+4,then f(2)+f(5)=?

A. 125
B. 180
C. 169
D. 785

Answer: If $x=y=1 \Rightarrow f(1+1) = f(1)+f(1)+7\times1\times1+4 \Rightarrow f(2) = 2\times4+7+4 = 19$
$[f(1)=4]$

$f(3) = f(2+1) = f(2)+f(1)+7\times2\times1+4 \Rightarrow f(3) = 19+4+14+4 = 41$

$f(5) = f(3+2) = f(3)+f(2)+7\times2\times3\times4 \Rightarrow f(5) = 41+19+42+4$
$= 106$

$\therefore f(2)+f(5) = 19+106 = 125$

21. A & B travelling from X to Y starts at 12 pm at a speed of 63m/hr. B at 1:30 pm at a speed of 84m/hr. At what time will B be 34m ahead of A?

A. 8:00 pm
B. 6:00 pm
C. 7:00 pm
D. 5.00 pm

Answer:

$\text{Time} = \frac{\text{Distance}}{\text{R/S}} = \frac{63\times1.5}{84-63} = \frac{63\times1.5}{21}$

$= 4.5$ hrs

4.5 hours after 1:30 = 6:00 pm

22. abs(x) = x irrespective of the sign ie.abs(-3)=3 if abs(x)+x+y=10 and x+abs(y)-y=12, then what is x+y

A. -2
B. -3
C. -4
D. -5

Answer:

$x + y - y = x = 12 \Rightarrow x = 12$

$abs(x) + 12 + y = 10$

$x + y = 10 - 12 = -2$

23. 28a + 30b +31c = 365 find a+b+c if a,b,c are natural numbers?

A. 12
B. 14
C. 19
D. 20

Answer:

Observing the data closely, we realize that-

RHS = 365 = No. of days in a normal year

a → no. of months with 28 days

b → no. of months with 30 days

c → no. of months with 31 days

∴ a = 1, b = 4, c = 7 &

$a + b + c = 12$

24. Y-W-U-S-Q is coded as 25-23-21-19-17, what is S-F-A-Y-T coded as?

A. 19-20-30-4-5
B. 19-20-30-2-3
C. 19-6-1-25-20
D. None of these

Answer:

19-6-1-25-20

25. Initial price = 40000. It reduces ¾ of previous years price every year, what is the price after 3 years?

A. 16854
B. 42520
C. 16875
D. 16876

Answer:

price after 3 years

$= 40000 \times (3/4)^3 = 16,875$

26. 60 men work take 40 days to complete a work. Now suppose that 60 men starts working and every 5 days 5 people leave. In how many days the work will be completed?

A. 15
B. 20
C. Not complete
D. None of these

Answer:

Total work = 60×40

So, $60 \times 40 = 60 \times 5 + 55 \times 5 + 50 \times 5 + \cdots$ n terms

$60 \times 8 = 60 + 55 + 50 + 45 + \cdots$ n terms

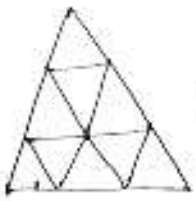
LHS > RHS till even the last term.

So work will not get complete.

27. There was a triangle question. There was a diagram of a triangle with multiple symmetric triangle inside and they asked us how to many triangles there were total?

A. 13
B. 12
C. 11
D. 15

Answer:



$T = 3^2 + 3^1 + 3^0 = 13$

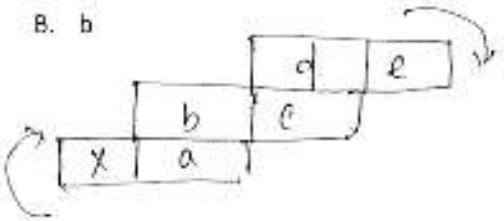
$n^{n-1} + n^{n-2} + \cdots n^1 + n^0$ → formula

n is no. of segment in which any side is divided.

28. Ok this is a a 2 paper cut u have fold it into a cube and say what letter is on the opposite side of X.

A. a
B. b
C. c
D. d

Answer:



c is opposite

29. U have to find a,b,c,d,e,f such that the sum of the sides are equal The number 6,12, 21,22,27,34 are placed in boxes a,b,c,d,e,f, in such a order that sum of entire entities are the same number K. What is the value of K?

9	a 21 ⟺	b 22	14
c 34			d 27
23	e 12 ⟺	f	25

A. 71
B. 66
C. 61
D. 69

Answer:

30. There are 5 men and 11 women. How many ways can a panel of 11 be formed such that the number of men is not more than 3?

A. 2256
B. 1256
C. 1478
D. None of these

Answer:

$0M + 11W \longrightarrow {}^5C_0 \times {}^{11}C_{11} = 1$

$1M + 10W \longrightarrow {}^5C_1 \times {}^{11}C_{10} = 55$

$2M + 9W \longrightarrow {}^5C_2 \times {}^{11}C_9 = 550$

$3M + 8W \longrightarrow {}^5C_3 \times {}^{11}C_8 = 1650$

2256

31. No chocolates were sold. Shopkeeper reduces price of chocolates from Rs. 2 to a value not less than the half of Rs2 and earned Rs.164.90. find number of chocks sold at the reduced price?

A. 98
B. 97
C. 96
D. 95

Answer:

Breaking Rs 164.90 in it's factors we get-

$164.90 = 1.7 \times 97$

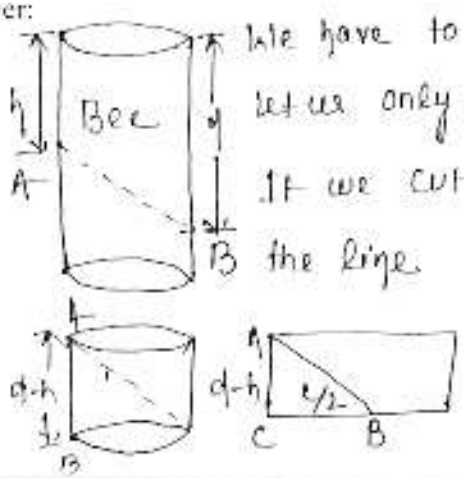
It cannot be broken down further as 17 & 97 are both prime.

So, if price is reduced to 1.7, 97 chocolates were sold.

32. A bee is on the outer surface of the cylinder at a dist h from top and a point is present at a dist d from top on the diametrically opp side. Find least dist the bee has to travel to reach d(circumference, h and d were given)

A. $\sqrt{(c/2)^2+(d-h)^2}$
B. $\sqrt{(d/2)^2+(c-h)^2}$
C. $\sqrt{(h/2)^2+(d-h)^2}$
D. None of these

Answer:



We have to find the length of dotted line. So let us only consider (d-h) length of cylinder. If we cut open the cylinder along the line AC we get rectangle

So $AB = \sqrt{(c/2)^2+(d-h)^2}$

33. A bag contain 6 sticks of the following length 1 cm, 3cm, 7cm, 11cm and 13cm. 3 sticks are drawn at a random from the bag. What is the probability that we can form a triangle with those sticks?

A. 11/12
B. 1
C. 1/4
D. 2/5
E. 1/5

Answer: Total no. of ways $= {}^5C_3 = 10$

There are selecting 3 sticks

x (1, 3, 7)
x (1, 3, 11)
x (1, 3, 13)
x (1, 7, 11)
x (1, 7, 13)
x (1, 11, 13)
x (3, 7, 11) ✓ (7, 11, 13)
x (3, 7, 13)
✓ (3, 11, 13)

we see that only 2 cases triangles are possible.

∴ Probability $= 2/10 = 1/5$

34. A finishes a job in 10 day. B in 15 days. If Rs 5000 was paid for work done by both during the same time how much should A be paid?

A. 3000
B. 2000
C. 5000
D. 4000

Answer: Ratio of A's efficiency : B's efficiency is

$\frac{1}{10} : \frac{1}{15} = 3 : 2$

So, A should be paid $\frac{3}{3+2} \times 5000 =$ 3000/-

35. Father works 5 times than son. If father takes 40 days less to complete the same work. Find the days if both work together?

A. 8.44 days
B. 8.33 days
C. 8.66 days
D. 8.55 days

Answer: If Son takes n days, father takes n/5 days

$n - n/5 = 40$

$\Rightarrow n = 50$

So, Son → 50 days, father = 10 days

Both working together

$\frac{50 \times 10}{50 + 10} = 25/3$ [= 8.33 days]