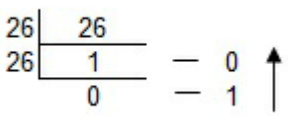
STAR MARK QUANTITATIVE QUESTIONS:

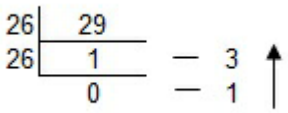
1. In particular language if A=0, B=1, C=2,..... .., Y=24, Z=25 then what is the value of ONE+ONE (in the form of alphabets only)
a. BDAI
b. ABDI
c. DABI
d. CIDA

Answer: a

Explanation:
This problem is based on Base 26 rather than regular base 10 (decimal system) that we normally use. In base 10 there are 10 digits 0 to 9 exist. In base 26 there are 26 digits 0 to 25 exist. To convert any number into base 26, we have to divide the number with 26 and find the remainder.
Here, ONE + ONE =
E has value of 4. So E + E = 8 which is equal to I.
Now N + N = 13 + 13 = 26. But in base 26, there is no 26.
So (26)10=(10)26(26)10=(10)26



So we put 0 and 1 carry over. But 0 in this system is A.
Now O + O + 1 = 14 + 14 + 1 = 29



Therefore, (29)10=(13)26(29)10=(13)26
But 1 = B and 3 = D in that system. So ONE + ONE = BDAI

2. Find the number of perfect squares in the given series 2013, 2020, 2027,....., 2300 (Hint 44^2=1936)
a. 1
b. 2
c. 3
d. Can't be determined

Answer: a

Explanation:
The given series is an AP with common difference of 7. So the terms in the above series are in the form of 2013 + 7k. We have to find the perfect squares in this format in the given series.
Given that 44^2 = 1936.
Shortcut: To find the next perfect square, add 45th odd number to 44^2.
So 45^2 = 1936 + (2 x 45 -1) = 2025
46^2 = 2025 + (2 x 46 - 1) = 2116
47^2 = 2116 + (2 x 47 - 1) = 2209
Now subtract 2013 from the above numbers and divide by 7. Only 2209 is in the format of 2013 + 7k. One number satisfies.

3. What is in the 200th position of 1234 12344 123444 1234444....?
a. 1
b. 2
c. 4
d. Can't be determined

Answer: C

Explanation:
The given series is 1234, 12344, 123444, 1234444, ...

So the number of digits in each term are 4, 5, 6, ... or (3 + 1), (3 + 2), (3 + 3), ...upto n terms = 3n+n(n+1)23n+n(n+1)2
So 3n+n(n+1)2≤2003n+n(n+1)2≤200
For n = 16, We get 184 in the left hand side. So after 16 terms the number of digits equal to 184. And 16 them contains 16 + 3 = 19 digits.
Now 17 term contains 20 digits
and 123444.....417times123444.....417times. So last digit is 4 and last two digits are 44.

4. There are equal number of boys and girls in a class. If 12 girls entered out, twice the boys as girls remain. What was the total number of students in a class?

Answer: 48

Explanation:
Let the boys = b and girls = g
Given bg−12=21bg−12=21
Substitute b = g in the above equation. g = 24. So total students = 24 + 24 = 48

5. There are 120 male and 100 female in a society. Out of 25% male and 20% female are rural. 20% of male and 25% of female rural people passed in the exam. What % of rural students have passed the exam?

a. 25
b. 22
c. 42
d. Can't be determined

Answer: 22%

Explanation:

	Male	Female	
	120	100	
Rural	30	20	= 50
Passed	6	5	= 11

From the above data, Rural male = 25%(120) = 30, Rural female = 20%(100) = 20.
Passed students from rural: male = 20%(30) = 6, female = 25%(20) = 5
Required percentage = 1150×100=22%1150×100=22%

06. On the fabled Island of Knights and Knaves, we meet three people, A, B, and C, one of whom is a knight, one a knave, and one a spy. The knight always tells the truth, the knave always lies, and the spy can either lie or tell the truth.A says: "C is a knave."B says: "A is a knight."C says: "I am the spy."Who is the knight, who the knave, and who the spy?

Answer: A IS SPY

Explanation: A= Knight, B= Spy, C = Knave
Let us say A is Knight and speaks truth. So C is Knave and B is spy. So C's statement is false and B's statement is true. This case is possible.
Let us say B is Knight. This is not possible as A also becomes Knight as B speaks truth.
Let us say C is Knight. This is clearly contradicted by C's statement itself.

7. abb ccc dddd eeeee .....What is the 120th letter?

a. 10E
b. 20G
c. 15O
d. Can't be determined

Answer: C

Explanation:
Number of letters in each term are in AP. 1, 2, 3, ...
So n(n+1)2≤120n(n+1)2≤120
For n = 15, we get LHS = 120. So 15th letter in the alphabet is O. So 15th term contains 15 O's.

8. 1/7 th of the tank contains fuel. If 22 litres of fuel is poured into the tank the indicator rests at 1/5th mark. What is the quantity of the tank?

Answer: 385

Explanation:
Let the tank capacity = vv liters.
Given, v7+22=v5v7+22=v5
v5−v7=22⇒v=385v5−v7=22⇒v=385

9. What is the probability of getting sum 3 or 4 when 2 dice are rolled

Answer: 5/36

Explanation:
Required number of ways = (2, 1), (1, 2), (1, 3), (3, 1), (2, 2) = 5
Total ways = 62=3662=36
Probability = 536536