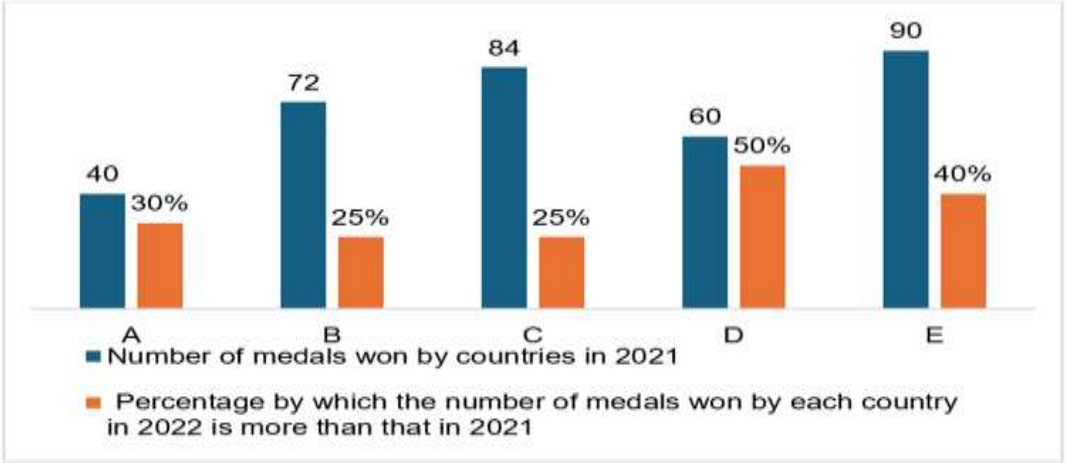
MATH PAPER TEST 7}

Directions [Set of 6 Questions]: Answer the questions based on the information given below.

The bar graph given below shows the number of medals won by five countries in 2021 and it also shows the percentage by which the number of medals won by each country in 2022 is more than that in 2021.

Note: For each country, total number of medal won = number of medal won in 2021 + number of medal won in 2022



Q1.Find the difference between the total number of medals won by 'C' and 'E'.
A.40 B.27 C.23 D.32 E.53

Q2. Find the ratio of the number of medals won by 'B' in 2021 to the number of medals won by 'D' in 2022.
A.5:6 B.4:5 C.3:4 D.2:3 E.8:9

Q3. Find the average number of medals won by 'C', 'D' and 'E' in 2022.
A.102 B.107 C.121 D.90 E.81

Q4. The ratio between the number of gold, silver and bronze medals won by 'E' in 2021 and 2022 is 4:3:11 and 2:2:3, respectively. Find the total number of gold medals won by' E' in 2021 and 2022. (Note: Total medals = gold medals + silver medals + bronze medals)
A.64 B.66 C.48 D.56 E.46

Q5. The number of medals won by 'B' in 2022 is how much percentage more than the number of medals won by 'A' in 2021?
A.90% B.125% C.150% D.80% E.75%

Q6. In 2021, the number of medals won by 'F' is 20% more than that won by 'E' and the total number of medals won by 'F' in both years is 40% more than that won by 'D'. Find the number of medals won by 'F' in 2022.
A.114 B.102 C.124 D.94 E.106

Q7. In the questions, two equations I and II are given. You have to solve both the equations to establish the correct relation between x and y and choose the correct option.
I. $x^2 - 32x + 112 = 0$
II. $y^2 + 20y + 99 = 0$
A.x > y B.x < y C.x = y or the relationship cannot be established
D.x ≥ y E.x ≤ y

Q8. I. $x^2 - 28x + 192 = 0$
II. $y^2 - 45y + 500 = 0$
A.x > y B.x < y C.x = y or the relationship cannot be established
D.x ≥ y E.x ≤ y

Q9. 'U' is 40% more efficient than 'V', who can complete 40% of the total work in 16 days. Find the time taken by 'U' to complete the whole work alone.
a. 35 days b. 28 days c. 14 27 days d. 28 47 days e. 30 days

Q10. Ritu and Raj together start a business by investing Rs. 12,000 and Rs. 15,000 respectively. Ritu invests her sum for 9 months. If, at the end of the business, Ritu gets Rs. 9000 out of a total profit of Rs. 21500, then find the number of moths for which Raj invests his sum.
A.11 months B.12 months C.6 months D.8 months
E.10 months

Q11. On a particular day, the probability that Ram goes to school is (3/5) and the probability that Shyam goes to school in (2/3) . Find the probability that neither Ram nor Shyam goes to school.
A.(1/2) B.(4/5) C.(1/3) D.(4/9) E.(2/15)

Q12. Esha can cover 60 km in 6 hours, while Rasha can cover 80 km in 5 hours. If the distance between Esha and Rasha is 104 km and both are travelling towards each other, then find the time taken by them to meet each other.
A.5 hours B.3 hours C.8 hours D.4 hours E.2.5 hours

Q13. The area of a rectangle is 120 cm^2. The ratio between the length and breadth is 6:5 respectively. If the side of the square is 8 cm less than the sum of the length and breadth of the rectangle, then find the area of the square.
A.144 cm^2 B.196 cm^2 C.324 cm^2 D.256 cm^2 E.100 cm^2

Q14. The speed of the boat in still water is 15 km/hr more than the speed of the stream. The boat can cover 105 km downstream in 5 hours. Find the time taken by the boat to cover 270 km in still water.
A.18 hours B.10 hours C.15 hours D.12 hours E.8 hours

Q15. The following numbers form a series. Find the odd one out.
48, 51, 59, 66, 78, 93
A.48 B.66 C.59 D.78 E.93

Q16) 22, 26, 32, 44, 50, 62
A.44 B.22 C.26 D.50 E.62

Q17) 8, 17, 37, 71, 143, 287
A.37 B.17 C.71 D.143 E.287

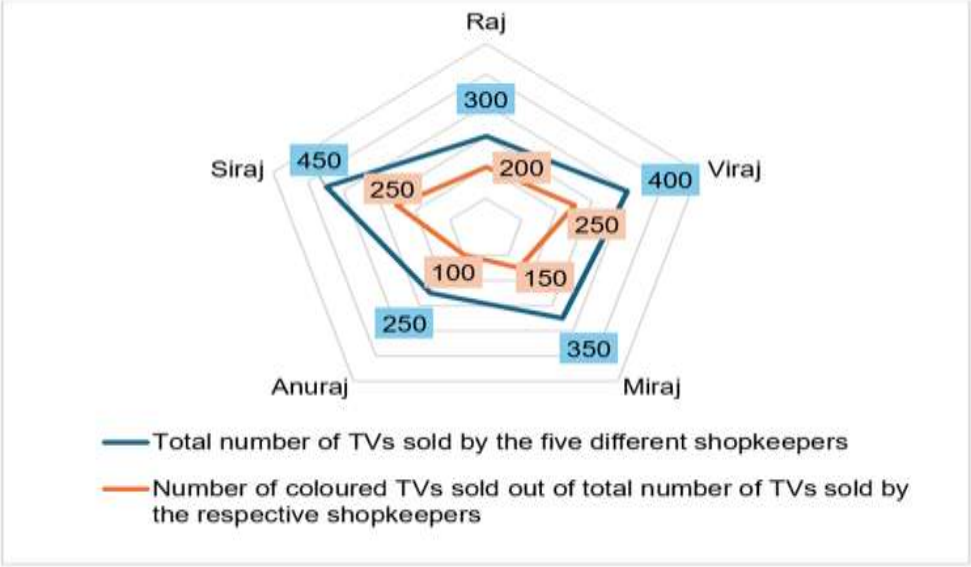
Q18) 5, 11, 17, 26, 37, 50
A.11 B.5 C.26 D.37 E.50

Q19) 17, 19, 22, 27, 34, 43
A.17 B.43 C.19 D..22 E.27

Q20. What will come in the place of question mark (?) in the given expression?
$(90 \div 18) \times 24 + (320 \div 64) = ?^3$
A.6 B.10 C.5 D.8 E.9

Q21. {(56 X 12) ÷ 24} + 30% of 140 = ?
A.32 B.56 C.70 D.90 E.80

Q22 ($35^2 - 25^2$) % of 18 + $\sqrt{144}$ = ?
A.150 B.140 C.20 D.120 E.100
Q23.$\sqrt{(45\% \text{ of } 320 + 16^2)}$ = ?
A.22 B.12 C.20 D.16 E.24
Q24. 70% of 300 - 20% of 45 - 30% of 70 = ?
A.144 B.240 C.120 D.210 E.180
Q25 . [{($9^2 + 3^2$) ÷ 18} + $\sqrt{100}$] X 6 = ?
A.126 B.50 C.64 D.90 E.32
Q.26. (85 ÷ 17) + 4^2 + 40% of 70 = $?^2$
A.8 B.3 C.7 D.2 E.10
Q27. ($64 \div 4^2$) X (8532) X (5617) = ?
A.40 B.70 C.35 D.24 E.10
Q28.. (103 + 3^3) % of 40 + 2^3 = ?
A.60 B.30 C.50 D.20 E.10
Q29. {(34 X 55) ÷ 187} + 30% of 40 = ?
A.20 B.25 C.32 D.22 E.18
Q30. Ramu received a total amount of Rs. 89600 on investing Rs. 56,000 on simple interest at 'r'% p.a. for 5 years. Find the value of 'r'.
A.10 B.15 C.12 D.16 E.14
Q31. The marked price of an item is Rs. 560, and it is sold after giving a discount of 14 27%. On selling the item, there is a profit of 9 111%. Find the amount by which the item was marked above its cost price.
A.Rs. 110 B.Rs. 100 C.Rs. 120 D.Rs. 130 E.Rs. 140
Q32. The average of the present age of 'B' and 'C' is 32 years. 4 years ago from now, the ratio of ages of 'B' and 'C' was 15:13 respectively. Find the present age of 'C'.
A.28 years B.34 years C.32 years D.30 years E.35 years
Q33. In 2019, Tina spent 40% of her income, and in 2020, her income increased by 30%. In 2020, she spent 30% of her income. Find the percentage change in her savings.
a. 33% increased b. 60 23% increased c. 51 23% increased d. 40% increased e. None of these
Q34. The average mark of a class of 50 students is 60. The marks of two students are calculated as 56 and 46 instead of 65 and 64. Find the correct average marks of the class.
A.60.80 B.61.20 C.59.80 D.60.54 E.59.46
Q35. The ratio of milk and water in a mixture is 3:1, respectively. When 21 ml of water is added to the mixture, the ratio of milk to water becomes 9:10. Find the initial quantity of the mixture.
A.63 ml B.54 ml C.27 ml D.45 ml E.36 ml
Directions [Set of 5 Questions]: Answer the questions based on the information given below.
The radar chart given below shows the total number of TVs sold by the five different shopkeepers, and it also shows the number of coloured TVs sold out of the total number of TVs sold by the respective shopkeeper.



Note: Total number of TVs sold by each shopkeeper = Number of colour TVs sold + Number of monochrome TVs sold
Q36. Find the ratio between the number of monochrome TVs sold by Viraj to that sold by Anuraj. A.3:2 B.1:2 C.2:1 D.1:1 E.2:3
Q37. Find the average number of colour TVs sold by Raj, Viraj and Miraj. A.100 B.200 C.220 D.180 E.240
Q38. The number of monochrome TVs sold by Miraj is how much percentage of the total number of TVs sold by Anuraj?
A.90% B.60% C.75% D.80% E.125%
Q39. If the selling price of a colour TV and a monochrome TV is Rs. 5,000 and Rs. 2,500, respectively, then find the total amount generated by Siraj on selling all the TVs. A.Rs. 17,00,000 B.Rs. 14,50,000 C.Rs. 17,50,000 D.Rs. 16,50,000 E.Rs. 15,50,000
Q40. The number of colour TVs sold by another person Giriraj is 30% more than that sold by Raj and the number of monochrome TVs sold by him is 48% more than that sold by Raj. Find the total number of TVs (colour and monochrome) sold by Giriraj.
A.306 B.402 C.408 D.312 E.360

1.B **Solution**
For 'A',
Number of medals won in 2021 = 40
Or, number of medals won in 2022 = 40 X 1.3 = 52
So, total number of medals won = 40 + 52 = 92
Similarly,

Country	Number of medals won in 2021	Number of medals won in 2022	Total number of medals won
A	40	52	92
B	72	90	162
C	84	105	189
D	60	90	150
E	90	126	216

So, required difference = 216 - 189 = 27
Hence, option b.

2B
Required ratio = 72:90 = 4:5
Hence, option b.

3.B
Required average = (105 + 90 + 126) ÷ 3 = 107
Hence, option b.

4.D
Number of gold medals won by 'E' in 2021 = 90 X (4/18) = 20
Number of gold medals won by 'E' in 2022 = 126 X (2/7) = 36
So, required number of medals = 20 + 36 = 56
Hence, option d.

5.B
Required percentage = {(90 - 40) /40} X 100 = 125%
Hence, option b.
6.B
Total number of medals won by 'F' in both years = 150 X 1.4 = 210
Number of medals won by 'F' in 2021 = 90 X 1.2 = 108
So, number of medals won by 'F' in 2022 = 210 - 108 = 102
Hence, option b.
7.A
Solution
From I:
$x^2 - 32x + 112 = 0$
$x^2 - 28x - 4x + 112 = 0$
$x(x - 28) - 4(x - 28) = 0$
$(x - 28)(x - 4) = 0$
So, 'x' = 28 or 4
From II:
$y^2 + 20y + 99 = 0$
$y^2 + 11y + 9y + 99 = 0$
$y(y + 11) + 9(y + 11) = 0$
$(y + 11)(y + 9) = 0$
So, 'y' = - 11 or -9

'x'	Relationship	'y'
28	>	-11
28	>	-9
4	>	-11
4	>	-9

So, x > y
Hence, option a.

8.B **Solution**
From I:
$x^2 - 28x + 192 = 0$
$x^2 - 16x - 12x + 192 = 0$
$x(x - 16) - 12(x - 16) = 0$
$(x - 16)(x - 12) = 0$
So, 'x' = 16 or 12
From II:
$y^2 - 45y + 500 = 0$
$y^2 - 25y - 20y + 500 = 0$
$y(y - 25) - 20(y - 25) = 0$
$(y - 25)(y - 20) = 0$
So, 'y' = 25 or 20

'x'	Relationship	'y'
16	<	25
16	<	20
12	<	25
12	<	20

So, x < y
Hence, option b.
Previous

9.D
Solution
Let the efficiency of 'V' be 5x units/day
So, the efficiency of 'U' = 5x X 1.4 = 7x units/day

Total time taken by 'V' to complete the work = 16 X (100/40) = 40 days
So, total work = 40 X 5x = 200x units

So, the required number of days = (200x/7x) = $28\frac{4}{7}$ days
Hence, option d.

10.E

Solution

Let the number of months for which Raj invests his sum be 'x' months
So, the ratio of profit of Ritu and Raj, respectively,
= {(12,000 X 9) :(15,000 X x) }
= 36:5x
The amount of profit received by Raj = 21500 - 9000 = Rs. 12500
ATQ,
(36/5x) = (9000/12500)
Or, (1/x) = (250/2500)
Or, 'x' = 10
Hence, option e.

11.E

Solution

The probability that Ram does not go to school = 1 - (3/5) = (2/5)
The probability that Shyam does not go to school = 1 - (2/3) = (1/3)
So, required probability = (2/5) X (1/3) = (2/15)
Hence, option e.

12.D

Solution

Speed of Esha = (60/6) = 10 km/hr
Speed of Rasha = (80/5) = 16 km/hr
So, relative speed = 10 + 16 = 26 km/hr
So, required time = (104/26) = 4 hours
Hence, option d.

13.B

Solution

Let the length and the breadth of the rectangle be 6x cm and 5x cm respectively.
Area of the rectangle = length X breadth
So, 120 = 6x X 5x
Or, 120 = 30 X x^2
Or, 4 = x^2
So, 'x' = 2
So, side of the square = (6 X 2 + 5 X 2) - 8 = 14 cm
So, required area = 14 X 14 = 196 cm^2
Hence, option b.

14.C

Solution

Let the speed of the boat in still water and the speed of the stream be 'x' km/hr and 'y' km/hr, respectively.
So, (x - y) = 15 km/hr.....(I)
So, downstream speed of boat = (x + y) km/hr
So, (105/5) = (x + y)
Or, 21 = x + y.....(II)
From equation (I) and (II) ,
Or, 'x' = (15 + 21) /2 = 18 km/hr
So, required time = (270/18) = 15 hours
Hence, option c.
Previous

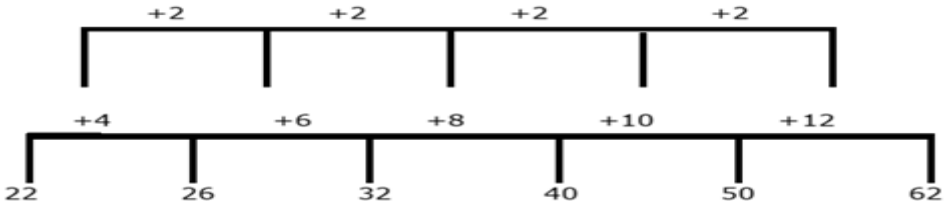
15.C

Solution

48 + 3 X 1 = 51
51 + 3 X 2 = 57
57 + 3 X 3 = 66
66 + 3 X 4 = 78
78 + 3 X 5 = 93
Therefore, 57 should come in place of 59
Hence, option c.

16.A

Solution



Therefore, 40 should come in place of 44
Hence, option a.

17.A

Solution

8 X 2 + 1 = 17
17 X 2 + 1 = 35
35 X 2 + 1 = 71
71 X 2 + 1 = 143
143 X 2 + 1 = 287
Therefore, 35 should come in place of 37.
Hence, option a.

18.A

Solution

2^2 + 1 = 5
3^2 + 1 = 10
4^2 + 1 = 17
5^2 + 1 = 26

$6^2 + 1 = 37$
$7^2 + 1 = 50$
Therefore, 10 should come in place of 11.
Hence, option a.

19.B
Solution
The given series follows the pattern of addition of consecutive prime numbers.
17 + 2 = 19
19 + 3 = 22
22 + 5 = 27
27 + 7 = 34
34 + 11 = 45
Therefore, 45 should come in place of 43.
Hence, option b.

20.C
Solution
(90 ÷ 18) X 24 + (320 ÷ 64) = $?^3$
5 X 24 + 5 = $?^3$
120 + 5 = $?^3$
125 = $?^3$
? = 5
Hence, option c.

21.C
Solution
{(56 X 12) ÷ 24} + 30% of 140 = ?
28 + 0.30 X 140 = ?
28 + 42 = ?
? = 70
Hence, option c.

22.D
Solution
$(35^2 - 25^2)$ % of 18 + √144 = ?
(1225 - 625) % X 18 + 12 = ?
6 X 18 + 12 = ?
108 + 12 = ?
? = 120
Hence, option d.

23.C
Solution
√(45% of 320 + 16^2) = ?
√(0.45 X 320 + 256) = ?
√(144 + 256) = ?
√400 = ?
? = 20
Hence, option c.

24.E
Solution
70% of 300 - 20% of 45 - 30% of 70 = ?
0.70 X 300 - 0.2 X 45 - 0.3 X 70 = ?
210 - 9 - 21 = ?
210 - 30 = ?
? = 180
Hence, option e.

25.D
olution
[{$(9^2 + 3^2)$ ÷ 18} + √100] X 6 = ?
[{(81 + 9) ÷ 18} + 10] X 6 = ?
[{90 ÷ 18} + 10] X 6 = ?
[5 + 10] X 6 = ?
? = 90
Hence, option d.

26.C
olution
(85 ÷ 17) + 4^2 + 40% of 70 = $?^2$
5 + 16 + 0.40 X 70 = $?^2$
21 + 28 = $?^2$
49 = $?^2$
? = ±7
Hence, option c.

27.C
Solution
(64 ÷ 4^2) X (85/32) X (56/17) = ?
(64 ÷ 16) X (85/32) X (56/17) = ?
4 X 5 X 1.75 = ?
? = 35
Hence, option c.

28.A
Solution
(103 + 3^3) % of 40 + 2^3 = ?
(103 + 27) % X 40 + 8 = ?
1.3 X 40 + 8 = ?
52 + 8 = ?
? = 60
Hence, option a.

29.D
Solution
{(34 X 55) ÷ 187} + 30% of 40 = ?
{(1870) ÷ 187} + 0.3 X 40 = ?
10 + 12 = ?

? = 22
Hence, option d.

30.C
Solution
We know that, simple interest = {(principal X rate X time) /100}
Interest received by Ramu = 89600 - 56000 = Rs. 33600
So, (56,000 X r X 5) /100 = 33600
Or, 2800 X r = 33600
So, 'r' = 12
Hence, option c.

31.C
Solution
Selling price of the item = Rs. 560 X (6/7) = Rs. 480
So, the cost price of the item = Rs. 480 X (11/12) = Rs. 440
So, the required amount = 560 - 440 = Rs. 120
Hence, option c.

32.D
Solution
Let the age of 'B' and 'C' 4 years ago be 15x years and 13x years respectively.
So, the present age of 'B' = 15x + 4 years
Or, the present age of 'C' = 13x + 4 years
ATQ,
Or, 15x + 4 + 13x + 4 = 32 X 2
Or, 28x = 64 - 8
Or, 28x = 56
So, 'x' = 2
So, required age = 13 X 2 + 4 = 30 years
Hence, option d.

33.C
Solution
Let the income of Tina in 2019 be Rs. 100x
So, the savings of Tina in 2019 = 100x X 0.6 = Rs. 60x
Or, the income of Tina in 2020 = 100x X 1.3 = Rs. 130x
So, the savings of Tina in 2020 = 130x X 0.7 = Rs. 91x
So, required change = {(91x - 60x) /60x} X 100 = $51\frac{2}{3}\%$ increased
Hence, option c.

34.D
Solution
The sum of the marks of all students = 50 X 60 = 3000
So, the correct sum of the marks of all students = 3000 - (56 + 46) + (65 + 64) = 3027
So, the required average = 3027 ÷ 50 = 60.54
Hence, option d.
35. E
Solution
Let the initial quantity of milk and water in mixture be 3x ml and 'x' ml respectively.
ATQ,
{3x/(x + 21) } = (9/10)
Or, 30x = 9x + 189
Or, 21x = 189
So, 'x' = 9
So, the required quantity of the mixture = 3x + x = 4 X 9 = 36 ml
Hence, option e.

36.D
Solution
For Raj,
Total number of TVs sold = 300
So, number of monochrome TV sold = 300 - 200 = 100
Similarly,

Shopkeeper	Total number of TVs sold	Number of colour TVs sold	Number of monochrome TVs sold
Raj	300	200	100
Viraj	400	250	150
Miraj	350	150	200
Anuraj	250	100	150
Siraj	450	250	200

Required ratio = 150:150 = 1:1
Hence, option d.

37.B
So, the required average = (200 + 250 + 150) ÷ 3 = 200
Hence, option b.

38.D
So, the required percentage = (200/250) X 100 = 80%
Hence, option d.

39.C
So, required amount = (5000 X 250 + 2500 X 200) = Rs. 17,50,000
Hence, option c.

40.C

Number of colour TVs sold by Giriraj = 200 X 1.3 = 260
The number of monochrome TVs sold by Giriraj = 100 X 1.48 = 148
So, the required number of TVs = 260 + 148 = 408
Hence, option c.