

## ARITHMETICAL REASONING - INSERTING THE MISSING CHARACTER

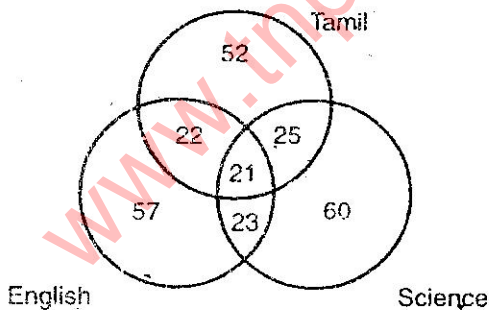
### ARITHMETICAL REASONING

- In a group of dogs and hens, the number of legs are 16 more than twice the number of heads. The number of dogs are  
1. 5      2. 8      3. 10      4. 12
  - A shepherd had 19 sheep. All but nine died. How many was he left with?  
1. None      2. 8      3. 11      4. 9
  - A group of 1200 persons consisting of captains and soldiers is travelling in a ship. For every 19 soldiers there is one captain. The number captains in the group is  
1. 60      2. 65      3. 50      4. 70
  - At the end of the conference the 11 people present all shake hands with each other once. How many hand shakes will there be altogether?  
1. 55      2. 45      3. 53      4. 54
  - A boy got twice as many sums wrong as he got right. If he attempted 51 sums in all, how many did he solve correctly?  
1. 12      2. 17      3. 18      4. 15
  - The number of chairs in a room is three times the number of tables. which one of the following numbers cannot represent the total number of tables.  
1. 40      2. 60      3. 42      4. 52
  - A is three times as old as B. C was twice as old as A, 6 years ago. In a year's time A will be 31 what is the present age of C?  
1. 52      2. 54      2. 56      4. 60
  - If we add 24 to a number then it will become  $1\frac{1}{4}$  of that number. Then the number is.  
1. 72      2. 96      3. 120      4. 88
  - If 0.5 part of a number is equals 0.07 of another number. Then the ratio of the numbers are,  
1. 50:7      2. 5:7      3. 7:50      4. 1:14
  - A whole number and its reciprocal gives a sum  $40\frac{1}{20}$ . Then find that number  
1. 40      2. 401      3. 20      4. 21
  - If we decrease the side of a square by half. Then the area decrease by what percentage?  
1. 50%      2. 75%      3. 30%      4. 45%
- Directions :12 - 16 :** The following questions are based on the information given below. Data on 550 candidates, who took an examination in Physics, Mathematics and Chemistry is given below.
- |                            |     |
|----------------------------|-----|
| Passed in all the subjects | 192 |
| Failed in all the subjects | 70  |
| Failed in Physics          | 200 |
| Failed in Mathematics      | 219 |
| Failed in Chemistry        | 201 |
| Passed in Physics only     | 67  |

Passed in Mathematics only 53  
Passed in Chemistry only 52

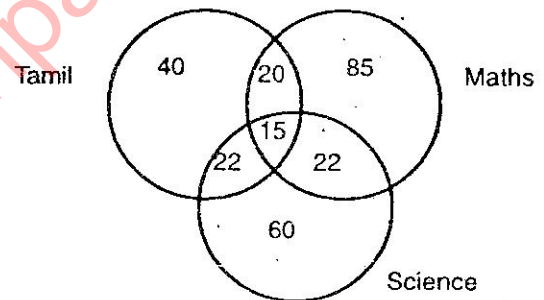
12. How many failed in Physics only?  
1. 20    2. 30    3. 25    4. 50
13. How many failed in one subject only?  
1. 106    2. 116    3. 140    4. 146
14. How many passed in Mathematics and atleast one more subject?  
1. 230    2. 248    3. 228    4. 130
15. How many failed in two subjects only  
1. 152    2. 162    3. 172    4. 201
16. How many passed at least in one subject?  
1. 420    2. 460    3. 360    4. 480
17. In an examination 75% passed in English, 85% Passed in Maths and 70 % passed in both the subjects find out the percentage who failed in both the subjects?  
1. 12    2. 8    3. 10    4. 15

Directions : 18 - 20 The diagram given below shows the number of students who got distinction in 3 subjects out of 600 students. Study the diagram carefully and answer the questions that follow.



18. What is the percentage of students who got distinction in 2 subjects?  
1. 10%    2. 11.88%  
3. 12%    4. 11.66%
19. What is the percentage of students who got distinction.  
1. 40%    2. 43.33%    3. 57%    4. 42%

20. The percentage of students with distinction marks in science is  
1. 19.86%    2. 20%  
3. 21.66%    4. 28%
21. Ravi is twice as old as Suresh three years ago, he was three times as old as Suresh. How old is Ravi now?  
1. 10    2. 12  
3. 14    4. 16
22. Six hundred candidates appeared in an examination comprising of tests in Tamil, Maths and Science. The diagram the number of candidates who failed in different tests. What is the Percentage of candidates who failed in at least two subjects.



1. 13%    2. 13.16%  
3. 14.2%    4. 16%
23. In a group of 16 people, 7 read Telugu, 8 read English while 3 of them read none of these two. How many of them read Telugu and English both?  
1. 4    2. 2  
3. 5    4. 3
24. In a group of cows of 24, All but ten died. How many was left?  
1. 14    2. 13  
3. 10    4. 15
25. In a meeting of 12 members each shakes hands with other. How many such handshakes occurs?  
1. 66    2. 64  
3. 60    4. 70

**ANSWERS**

1. (2)

Let the no. of dogs be  $x$ , and the no. of hens be  $y$ , then, number of legs in the group =  $4x + 2y$ , number of heads in the group =  $x + y$ . So,

$$4x + 2y = 2(x + y) + 16$$

$$4x + 2y = 2x + 2y + 16$$

$$2x = 16$$

$$\Rightarrow x = 8 = \text{no. of dogs}$$

2. (4)

All but nine died means

All except nine died (ie) nine sheep remained alive

3. (1)

Clearly, out of every 19 persons there is one captain, So the number of captains

$$\frac{1200}{20} = 60$$

4. (1)

Clearly, total number of handshakes =  $(10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1) = 55$

5. (2)

Suppose the boy got  $x$  sums right and  $2x$  sums wrong. Then,

$$x + 2x = 51$$

$$3x = 51$$

$$x = 17$$

6. (3)

Let the number of Tables =  $x$

The number of Chairs =  $3x$

Then  $3x + x = 4x = \text{Total Furnitures}$ . Thus, to find exact value of  $x$ , the total furniture must be divisible by 4.

7. (2)

Clearly we have,  $A = 3B$  ----- ①

$C - 6 = 2(A - 6)$  ----- ②

Also  $A + 1 = 31 \Rightarrow A = 30$

Putting  $A = 30$  in ----- ①

$$B = 10$$

Putting  $A = 30$  in ----- ②

$$C - 6 = 2(30 - 6) = 48$$

$$C = 48 + 6 = 54.$$

8. (2)

Let  $x$  be that number.

$$x + 24 = \frac{5}{4}x$$

$$\frac{x}{4} = 24$$

$$x = 96$$

9. (3)

Let  $x$  be the first number, let  $y$  be the second number.

$$0.5x = 0.07y$$

$$\frac{x}{y} = \frac{0.07}{0.5} = \frac{7}{50}$$

10. (3)

Let  $x$  be that number  $x + \frac{1}{x} = \frac{401}{20}$

$$x^2 - \frac{401}{20}x + 1 = 0$$

$$20x^2 - 401x + 20 = 0$$

$$20x(x - 20) - 1(x - 20) = 0$$

$$(20x - 1)(x - 20) = 0$$

$$x = 20 \text{ or } 1/20 \Rightarrow x = 20 \text{ Whole no.}$$

11. (2)

Let 'a' be the side of the square area =  $a^2$

$$\text{reduced side} = \frac{a}{2}$$

$$\text{Therefore new area} = \frac{a^2}{4}$$

$$\text{difference} = a^2 - \frac{a^2}{4} = \frac{3a^2}{4}$$

$$\text{Percentage} = \frac{3a^2}{4} / a^2 \times 100 = 75\%$$



12. (3)

Candidates failed in Physics only  
= (Candidates failed in Physics) – (Candidates failed in all the subjects + candidates passed in Chemistry only + Candidates passed in Maths only)  
=  $200 - (70 + 52 + 53)$   
=  $200 - 175 = 25$ .

13. (2)

Candidates failed in one subject only = (Total no. of candidates) – (Candidates passed in all the subjects + candidates failed in all the subjects + candidates passed in one subject only)  
=  $550 - (192 + 70 + 67 + 53 + 52) = 116$ .

14. (3)

Candidates failed in chemistry only =  $201 - (67 + 70 + 53) = 11$   
Candidates failed in Physics only = 25. Therefore candidates passed in Maths and at least one more subject =  $(11 + 25 + 192) = 228$ .

15. (3)

Candidates failed in two subjects only = Candidates passed in one subjects only.  
=  $67 + 53 + 52$   
= 172.

16. (4)

Candidates passed at least in one subject  
= (Candidates passed in only 1 subject)  
+ (Candidates passed in only 2 subjects)  
+ (Candidates passed in all the subjects)  
= (Candidates passed in only 2 subjects + (Candidates failed in only 1 subjects) + (Candidates passed in all the subject)  
=  $172 + 116 + 192$   
= 480.

17. (3)

Passed in English only =  $75 - 70 = 5\%$   
Passed in Maths only =  $85 - 70 = 15\%$   
Passed in all subjects =  $5 + 15 + 70 = 90\%$   
Failed persons =  $100 - 90 = 10\%$

18. (4)

Number of students who got distinction in two subjects =  $(25 + 23 + 22) = 70$   
Therefore required percentage  
=  $\left(\frac{70}{600} \times 100\right) = 11.66\%$

19. (2)

Number of students who got distinction  
=  $(60 + 57 + 52 + 22 + 21 + 23 + 25) = 260$ .  
required percentage =  $\left(\frac{260}{600} \times 100\right)\%$   
= 43.33%

20. (3)

Number of students with distinction in science =  $(60 + 23 + 22 + 25) = 130$   
required Percentage =  $\left(\frac{130}{600} \times 100\right)\%$   
= 21.66%

21. (2)

Let Suresh's present age be  $x$  years, Then Ravi's present age =  $2x$  years. Three years ago, Suresh's age =  $(x - 3)$   
Ravi's age =  $(2x - 3)$   
Ravi's present age can be obtained as follows  
 $(2x - 3) = 3(x - 3)$   
 $2x - 3 = 3x - 9$   
 $x = 6$   
Therefore Ravi's present age =  $2x = 12$  years.

22. (2)

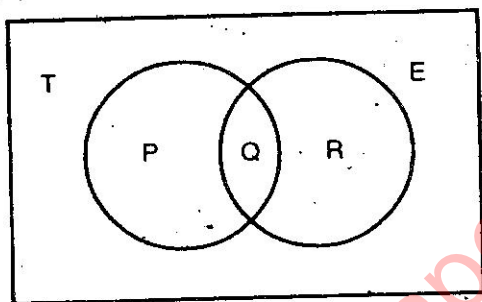
Clearly, number of candidates who failed in at least two subjects = number of candidates

$$= (20 + 22 + 22 + 15) = 79$$
 Therefore required percentage

$$= \left( \frac{79}{600} \times 100 \right) \%$$

$$= 13.16\%$$

23. (2)



Let Circles T and E represent who read Telugu and English respectively.

$(P + Q + R) + 3 = 16$

$P + Q + R = 13$  \_\_\_\_\_ ①

$P + Q = 7$

$Q + R = 8$

Adding  $P + 2Q + R = 15$  \_\_\_\_\_ ②

Subtracting with 1

$Q = 2$

Therefore no. of people who read Telugu and English both = 2.

24. (3)

All but ten died means, ten cows are alive.

25. (1)

Clearly total number of hand shakes

$= (11+10+9+8+7+6+5+4+3+2+1)$

$= 66$