Prime Merit
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Set Theory

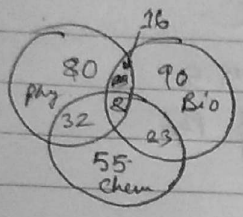
1 In a class of 200 students 80 students have taken physics, 90 have taken biology, 55 have taken chemistry, 32 have taken both phys & chem, 23 have taken both chem & biology, & 16 have taken phys & bio, and 8 students have taken all the 3 subjects.

i) How many students were not enrolled in any of these 3 subjects?

ii) How many students have taken Physics only?

iii) " " " " " Physics & chem only.

iv) " " " " " Atmost one of these subjects.



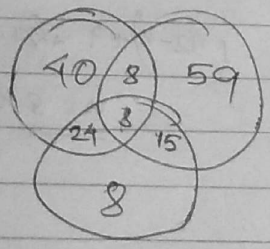
80
90
55
225

17
5
22

24
only

80
−56
24

16
32
+8
40
+16
56

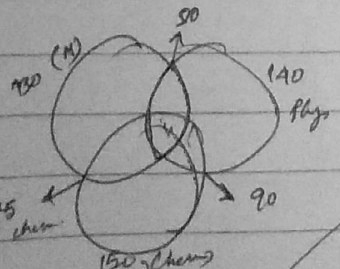


200
−162
38

Have not enrolled in any subjects

In a class there are 300 students among them, 130 have Maths 140 have takens Physics 150 have taken Chemistry, 80 have taken Maths & Physics, 90 have taken Phys & Chem & 75 have taken Chem & Maths & 60 Have taken neither Maths nor Phys nor Chemistry.

i) How many students read all the 3 subjects



200
200 − {(80−x)+(75−x)+(90−x)}
= 60.
300 − 80 + x − 75 + x − 90 + x
= 60
360 − 245 = 3x.
240 − 245 = 3x.

8
9
17
3
24

7
8
9
24

80
75
90

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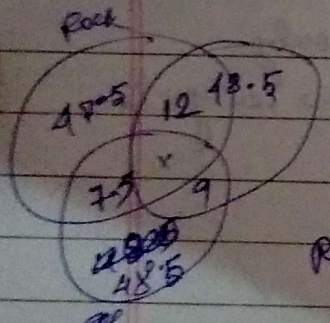
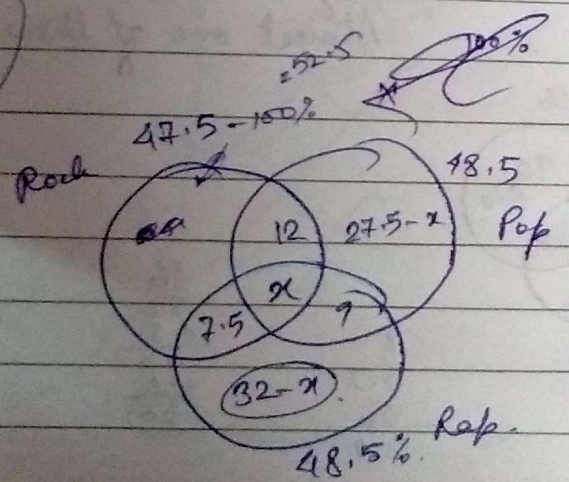
→ A survey a conducted on 400 music lovers:—

People like rock music = 47.5%.
" pop music = 48.5%.
" rap music = 48.5%
rock & pop only = 12%
rock & rap " = 7.5%.
pop & rap only = 9%.

→ What % of people like all 3 types of music





Rock = (100% - 47.5)

7.5+9

48.5 - 16.5%.

(32-x) + 9 + (27.5-x) = 52.5

x = 8%