Que 24: in a school there are 28 teachers who teach mathematics or physics. of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach physics?

Proof:- let M denote the set of teacher who teach mathematics and P denote the set of theachers who teach physics.

So we have given:

$$n(M \cup P) = 20$$

$$n(M) = 12 \quad \text{and} \quad n(M \cap P) = 4$$

we have to find $n(P)$.

using the result

$$n(M \cup P) = n(M) + n(P) - n(M \cap P)$$

we obtain

$$20 = 12 + n(P) - 4$$

$$n(P) = 12$$

Hence 12 teacher teach physics.

this problems can also be solved using venn diagram approche so please try it.