IT-24666
Fatin-AL-Mahir Molla

Question :- See the practice problems and Answers. Justify with explanations. (Any 6),

~~Ans~~ :-
Problem-1 :- Let G be a group of orders pq, where p and q are distinct primes. prove that G is abelian.

Ans :- Abelian of G.

Problem-2 :- prove that in any group G, the set of elements of finite orders from a subgroup of G.

Ans :- True of G.

Problem-3 :- Let G be a group and a, b ∈ G. prove that if $a^4 = b^2$ and $ab = ba$, Then $(ab)^6 = e$.

Ans :- True of $(ab)^6 = e$.

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problem-4:- Let G be a group and H be a subgroup of G. prove that if $[G:H] = n$, then for any $x \in G$, $x^n \in H$.

Ans:- True of $x \in G$, $x^n \in H$.

problem-5:- Let G be a finite group and H be a proper subgroup of G. prove that the union of all conjugates of H cannot be equal to G.

Ans:- false.

problem-6:- Let G be a finite group and H be a subgroup of G. prove that if $|G| = p$ where p is prime & p does not divide m, and $|H| = p^n$, then H is normal in G

Ans:- True of equations.