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Questions:

III. Answer the following.

1. Let X = {a, b, c, d}, and R = {(a, a) (b, b) (a, c)}. Write down the minimum number of ordered pairs to be included to R to make it
   (i) reflexive
   (ii) symmetric
   (iii) transitive
   (iv) equivalence
2. On the set of natural number let R be the relation defined by aRb if a + b $\leq$ 6. Write down the relation by listing all the pairs. Check whether it is equivalence.
3. Let A = {a, b, c}, What is the equivalence relation of smallest cardinality on A? What is the equivalence relation of largest cardinality on A?

II. Answer the following.

4. If n (p(A)) = 1024, n(A$\cup$B) = 15 and n(p(B)) = 32, then find n(A$\cap$B).
5. If A and B are two sets so that n(B - A) = 2n(A - B) = $4n(A \cap B)$ and if $n(A \cup B) = 14$, then find n(P (A)).

I. Answer the following.

6. Write the following in roster form.
   The set of all positive roots of the equation $(x-1)(x+1)(x^2-1) = 0$.
7. If A$\times$ A has 16 elements, S = {(a, b) $\in$ A$\times$ A:a < b}; (-1, 2) and (0, 1) are two elements of S, then find the remaining elements of S.

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