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Questions:

III. Answer the following.

1. A simple cipher takes a number and codes it, using the function f(x) = 3x - 4. Find the inverse of this function, determine whether the inverse is also a function and verify the symmetrical property about the line y = x(by drawing the lines)

2. Write the values of f at -4, 1, -2, 7, 0 if

$$f(x) = \begin{cases} -x+4 & if -\infty < x \leq -3 \\ x+4 & if -3 < x < -2 \\ x^2 - x & if -2 \leq x < 1 \\ x - x^2 & if 1 \leq x < 7 \\ 0 & otherwise \end{cases}$$

3. 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 reflexive

II. Answer the following.

4. The owner of a small restaurant can prepare a particular meal at a cost of Rupee 100. He estimate that if the menu price of the meal is x rupees, then the number of customers who will order that meal at that price in an evening is given by the function D(x) = 200 - x. Express his day revenue total cost and profit on this meal as a function of x.

5. Prove that $((A \cup B' \cup C) \cap (A \cap B' \cap C')) \cup ((A \cup B \cup C') \cap (B' \cap C')) = B' \cap C'$.

I. Answer the following.

6. For a set A, A$\times$A contains 16 elements and two of its elements are (1, 3) and (0, 2). Find the elements of A.

7. The distance of an object falling is a function of time t and can be expressed as $s(t) = -16t^2$. Graph the function and determine if it is one-to-one.

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