



## MATHEMATICS CH- 1- RELATION AND FUNCTIONS

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: XII Sec: \_\_\_\_

1.If  $f(x) = 8x^3$  and  $g(x) = x^{1/3}$ , find fog.

2.If  $f(x)$  is an invertible function, then find the inverse of the function  $f(x) = \underline{3x-2}$

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3.If the binary operation  $*$  on the set of integers, defined by  $a*b = a + 3b^2$ , then find the value of  $2*3$ .

4.Given  $f(x) = 9x^2 + 6x - 5$ . Show that  $f$  is invertible and find the inverse of  $f$ .

5.Given  $f(x) = 5x^2 + 6x - 9$ . Show that  $f$  is invertible and find the inverse of  $f$ .

6.Given  $f(x) = \underline{x-2}$ . Show that  $f$  is one- one and onto and hence find the inverse of  $f$

$x-3$

7.If the operation  $*$  defined as  $a*b = a+b - ab$ , then (i) is  $*$  commutative (ii) is  $*$  associative (iii) find the identity element (iv) find the inverse of  $a$ .

8.Prove that the relation  $R$  in the set  $A = \{5,6,7,8,9\}$  given by  $R = \{ (a,b): |a-b| \text{ is divisible by } 2\}$  is an equivalence relation. Find all the elements related to the element 6.

9.Prove that  $f(x) = \underline{2x-4}$  is a bijective function.

$3x-9$

10.Let  $N$  denotes the set of all natural numbers and  $R$  be the relation on  $N \times N$  defined by  $(a,b)R(c,d)$  if  $ad(b+c) = bc(a+d)$ . Show that  $R$  is an equivalence relation.