



- Find  $x$  and  $y$  if  $(x+2, 3) = (5, 2+y)$
- If  $A = \{1, 2, 4\}$ ,  $B = \{2, 3, 4\}$  then find  $A \times B$  and  $B \times A$ . Is  $A \times B = B \times A$  ?
- If  $A = \{1, 2, 4, 5\}$ ,  $B = \{3, 4, 5, 6\}$ ,  $C = \{2, 5, 6\}$  then verify that  
(i)  $A \times (B \cap C) = (A \times B) \cap (A \times C)$     (ii)  $A \times (B \cup C) = (A \times B) \cup (A \times C)$
- If  $A = \{-1, 0, 1\}$  then find  $A \times A \times A$
- If  $A$  has three elements and  $B$  has 2 elements such that  $(1, 2) \in A \times B$ ,  $(2, 3) \in B \times A$ ,  $(4, 2) \in A \times B$  then find  $A$  and  $B$ .
- If  $A$  has three elements and  $(x, y)$  and  $(y, z) \in A \times A$  then write  $A$ . Also write  $A \times A$ .
- Let  $R$  be a relation from  $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14\}$  to  $B = \{1, 2, 3, 4, 5, 6, 7\}$  defined as  $R = \{(x, y) : x \in A, y \in B, y+1 = x\}$ . Write  $R$  in roster form. Find the domain and range of  $R$ . White kind of relation must be there among students? **(Value Based)**
- Let  $R$  be a relation on set  $Z$  of integers defined as  $R = \{(x, y) : x, y \in Z, x^2 + y^2 = 36\}$ . Write  $R$  in roster form. Find the domain and range of  $R$ .
- Let  $A = \{1, 2, 3, \dots, 14\}$ . Define relation  $R$  on set  $A$  by  $R = \{(x, y) : x, y \in A, x - 3y = 0\}$ . Depict this relation using arrow diagram. Write down its domain, range and co-domain.
- Let  $R$  be relation on  $Z$  defined by  $R = \{(a, b) : a, b \in Z, a - b \text{ is an integer}\}$ . Find the domain and range of  $R$ .
- If  $A = \{1, 2, 3, 4\}$  and  $B = \{2, 3\}$  then find the number of relations from  $A$  to  $B$ .
- If  $A = \{1, 2, 3\}$  and number of relations from  $A$  to  $B$  are 128. Then find the number of elements in  $B$ .
- Find the domain and range of  $f(x) = \frac{x-2}{x-5}$ .
- Find the domain and range of  $f(x) = \frac{1}{\sqrt{3-x}}$
- Find the domain and range of  $f(x) = \sqrt{x-5}$
- Find the domain and range of  $f(x) = \sqrt{25-x^2}$
- Find the domain and range of  $f(x) = \sqrt{\frac{3-x}{x-5}}$  **(Hots)**



18. Find the domain and range of  $f(x) = \frac{x^2 + 1}{x^2 + 2}$
19. Find the domain and range of  $f(x) = \frac{x}{x^2 + 1}$
20. Find the domain and range of  $f(x) = \frac{3}{2 - x^2}$
21. Find the domain and range of  $f(x) = \sqrt{x^2 + x + 1}$  **(Hots)**
22. Find the domain and range of  $f(x) = \frac{x - 1}{x - 1}$
23. Find the domain and range of  $f(x) = \frac{x^2 - 1}{x - 1}$  **.(Hots)**
24. Find the domain and range of  $f(x) = \frac{x^2}{1 + x^2}$  **(Hots)**
25. Find the domain and range of  $f(x) = \frac{1}{1 - x^2}$
26. Draw the graph of  $f(x) = |x|$  . Write its domain and range.
27. Draw the graph of  $f(x) = \begin{cases} 1 + x, & \text{if } x \leq 0 \\ 1 - x, & \text{if } x > 0 \end{cases}$  . Write domain and range of the function. **(Hots)**
28. Draw the graph of  $f(x) = \frac{|x - 1|}{x - 1}$  . Write domain and range of  $f$
29. Find the domain and range of  $\frac{1}{\sqrt{x - [x]}}$  **(Hots)**
30. Find the domain of  $f(x) = \sqrt{x - |x|}$  . **(Hots)**
31. Draw the graph of the function  $f(x) = |x - 3| + |7 - x|$  . Write the domain and range of  $f$  **.(Hots)**
32. Draw the graph of  $f(x) = \begin{cases} 1 - x^2, & \text{if } x \geq 0 \\ 2x, & \text{if } x < 0 \end{cases}$  **(Hots)**
33. Draw the graph of  $f(x) = [x]$  (Greatest integer function). Write domain and range of  $f$
34. Draw the graph of  $f(x) = \{x\}$  (Fractional Part Function). Write domain and range of  $f$
35. Draw the graph of signum function. Write domain and range of  $f$
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36. Draw the graph of  $f(x) = \frac{1}{x}$ . Write domain and range of  $f$

37. Draw the graph of  $f(x) = \sqrt{x}$ . Write domain and range of  $f$

38. Draw the graph of  $f(x) = \sqrt{25-x}$ .

39. Draw the graph of  $f(x) = \log x$ . Write domain and range of  $f$

40. Draw the graph of  $f(x) = e^x$ . Write domain and range of  $f$

41. If  $f : R \rightarrow R$ ,  $g : R \rightarrow R$  such that  $f(x) = x^2$ ,  $g(x) = [x]$  then find

(i)  $(f+g)(2)$  (ii)  $(fg)(\sqrt{2})$  (iii)  $\left(\frac{f}{g}\right)(4)$

42. Let  $f, g : R \rightarrow R$  defined, respectively by  $f(x) = x+1$ ,  $g(x) = 2x-3$ . Find  $f+g$ ,  $f-g$ ,  $fg$ ,  $\frac{f}{g}$ .