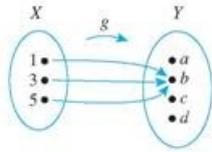


Problem

Let $X = \{1, 3, 5\}$ and $Y = \{a, b, c, d\}$. Define $g: X \rightarrow Y$ by the following arrow diagram.



a. Write the domain of g and the co-domain of g .

b. Find $g(1)$, $g(3)$, and $g(5)$.

c. What is the range of g ?

d. Is 3 an inverse image of a ? Is 1 an inverse image of b ?

e. What is the inverse image of b ? of c ?

f. Represent g as a set of ordered pairs.

Step-by-step solution

Step 1 of 6

(a) The domain of g is $X = \{1, 3, 5\}$, the co-domain of g is $\{a, b, c, d\}$

Step 2 of 6

(b) $g(1) = b$, $g(3) = b$, $g(5) = b$

Step 3 of 6

(c) Range of g is $\{b\}$

Step 4 of 6

(d) 3 is not the inverse image of a , but 1 is the inverse image of b

Step 5 of 6

(e) The inverse image $b = 1, 3, \text{ or } 5$ while the inverse image of c does not exist

Step 6 of 6

(f) $g = \{(1, b), (3, b), (5, b)\}$

Such a function is called a constant function