

Assignment-II

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Answer the questions

1. Find the domain and range of the function

a. $f(x) = \frac{x^2 - x + x}{x^2 + x + 1}$

b. $f(x) = \frac{1}{\sqrt{x-5}}$

c. $f(x) = \frac{|x-4|}{x-4}$

d. $f(x) = \frac{1}{\sqrt{1-\cos x}}$

2. If $f: R \rightarrow R$ is defined by $f(x) = (3 - x^3)^{\frac{1}{3}}$, then find $f \circ f(x)$.

3. Check one-one and onto of the following functions

a. $f: R \rightarrow R$ defined by $f(x) = 3x + 10$

b. $f: R \rightarrow R$ defined by $f(x) = 2x$

c. $f: N \rightarrow N$, given by

$$f(x) = \begin{cases} x + 1 & \text{if } x \text{ is odd} \\ x - 1 & \text{if } x \text{ is even} \end{cases}$$

d. $f: Z \rightarrow Z$ defined by $f(x) = x^3$