Practice Questions – Functions

Q.1 Show that $f: R - \{1\} \rightarrow R - \{2\}$ such that $f(x) = \frac{2x-3}{x-1}$ is bijective and hence find f^{-1}.

Q.2 Show that $f: R - \{3\} \rightarrow R - \{0\}$ such that $f(x) = \frac{1}{x-3}$ is bijective and hence find f^{-1}.

Q.3 Show that $f: R - \{5\} \rightarrow R - \{0\}$ such that $f(x) = \frac{1}{x-5}$ is bijective and hence find f^{-1}.

Q.4 Check whether the function $f: Z \rightarrow Z$ defined as $f(x) = x^2 + x + 1$ is bijective .

Q.5 If the functions f and g are defined as $f: R \rightarrow R$, $f(x) = 2 + 3x$ and $g: R \rightarrow R$, $g(x) = 4 - 3x$. Find $f \circ g(x)$ and $g \circ f(x)$

Q.6 If the functions f and g are defined as $f: R \rightarrow R$, $f(x) = 2x + 3$ and $g: R \rightarrow R$, $g(x) = 3x + 4$. Find $f^{-1} \circ g^{-1}(x)$ and $g^{-1} \circ f^{-1}(x)$

Q.7 If the functions f and g are defined as $f: R \rightarrow R$, $f(x) = 2x - 3$ and $g: R \rightarrow R$, $g(x) = 4 - 3x$. Solve $g^{-1} \circ f^{-1}(x) = 2$

Q.8 Functions $f: R \rightarrow R$, $g: R \rightarrow R$ are defined as $f(x) = 5x + 3$ and

$g(x) = 1 + 3x$then find fog , fof , gof & $gogof$

Q.9 Functions $f: R \rightarrow R$, $g: R \rightarrow R$ are defined as $f(x) = 2x - 3$, $g(x) = 3x + 2$ Then show that $f(x), g(x)$ are bijective and hence find $f^{-1}(x)$, $g^{-1}(x)$, $g \circ f^{-1}$ and $g^{-1} \circ f$

Q.10 Functions $f: R \rightarrow R$, $g: R \rightarrow R$ are defined as $f(x) = x - 4$, $g(x) = 6 - 7x$ Then show that $f(x), g(x)$ are bijective and hence find $f^{-1}(x)$, $g^{-1}(x)$, $g \circ f^{-1}$ and $g^{-1} \circ f$

Q.11 Functions $f: R \rightarrow R$, $g: R \rightarrow R$ are defined as $f(x) = 2x$, $g(x) = x - 2$ Then show that $f(x), g(x)$ are bijective and hence find $f^{-1}(x)$, $g^{-1}(x)$, $g \circ f^{-1}$ and $g^{-1} \circ f$

Q.12 Functions $f: R \rightarrow R$, $g: N \rightarrow N$ are defined as $f(x) = x^2$, $g(x) = x^2$. check whether f, g are injective