CHAPTER 4
Logarithmic and Exponential Functions

SECTION 4.1

4.1.1 Find $f^{-1}(x)$ if $f(x) = 4 + x^3$.

4.1.2 Determine whether or not $f(x) = (x-1)^2$ is a one to one function on $[2, 4]$.

4.1.3 Determine whether or not $f(x) = 2x + 3$ is a one to one function and if so, find $f^{-1}(x)$.

4.1.4 Determine whether or not $g(x) = \sqrt{2x+1}$ is a one to one function and if so, find $g^{-1}(x)$ and specify its domain.

4.1.5 Show that $f(x) = x^2 + 4x + 9$ is not a one to one function. Modify the domain of f so that it will be a one to one function.

4.1.6 Show that $f(x) = \sqrt{4 - x^2}$ is not a one to one function. Modify the domain of f so that it will be a one to one function.

4.1.7 Find $f^{-1}(x)$ if $f(x) = \dfrac{1}{x^3+1}$ for $x \geq 0$ and specify the domain of f^{-1}.

4.1.8 Find $f^{-1}(-1)$ if $f(x) = -2x^5 + \dfrac{7}{8}$.

4.1.9 **(a)** Show that $f(x) = \dfrac{2x+3}{4x-2}$ is its own inverse.

(b) What does the result in (a) tell you about the graph of f?

4.1.10 **(a)** Show that $g(x) = \dfrac{x-5}{2x-1}$ is its own inverse.

(b) What does the result in (a) tell you about the graph of g?

4.1.11 Find $f^{-1}(x)$ if $f(x) = \sqrt[3]{2x+9}$.

4.1.12 Determine whether or not $f(x) = 2x^5 + x^3 + 7x - 5$ is a one to one function.

4.1.13 **(a)** Show that $f(x) = x^3 - 5x^2 + 6x + 1$ is not one to one on $(-\infty, +\infty)$.

(b) Find the largest value of k such that f is one to one on the interval $(-k, k)$.

4.1.14 Find $g^{-1}(4)$ if $g(x) = 2x + 3$.

4.1.15 Find $f^{-1}(x)$ if $f(x) = 2\sqrt{x-1}$ and specify the domain of f^{-1}.

4.1.16 Find $f^{-1}(x)$ if $f(x) = \dfrac{\sqrt{x}}{3} + 4$ and specify the domain of f^{-1}.