Assignment : Function

1. Values

(a) $f(x) = -11x^2 - 7x + 14$ find f(10)

(b) $f(x) = 9x^2 - 8x - 8$ find f(10)

(c) $f(x) = -15x^2 + 9$ find f(12)

(d) $f(x) = 5x^3 + 5x^2$ find f(-9)

(e) $f(x) = 7x - 11 - 3x^2$ find f(-6)

2. Find the inverse function of each of the following functions

(a) $f(x) = 8x$ (b) $f(x) = x + 10$ (c) $f(x) = \frac{x}{5} - 3$

(d) $f(x) = 9x + 3$ (e) $f(x) = x^3$ (f) $f(x) = \sqrt[3]{x}$

3. Determine if f(x) and g(x) are inverse functions of each other using $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

(a) $f(x) = 3x$ and $g(x) = \frac{x}{3}$ (b) $f(x) = 5x + 1$ and $g(x) = \frac{x-1}{5}$

(c) $f(x) = 3 - 4x$ and $g(x) = 3 - \frac{x}{4}$ (d) $f(x) = \frac{1}{x}$ and $g(x) = \frac{1}{x}$

Composite functions

4. If f(x) = 14x + 13 and g(x) = −11x^2 + 13x + 15, find f(f(4)).

5. If f(x) = −15x + 12 and g(x) = 12x^2 + 12x + 15 find f(3) − g(3).

6. Let f(x) = $\sqrt{x-3}$ and g(x) = $\frac{3}{x}$. Find f o g, g o f, f o f and g o g.

7. If f(x) = −12x^2 − 10x + 15 and g(x) = -10x^2 - 13x + 13 find g(f(6)).

8. Let f(x) = 10x + 14 and g(x) = −11x – 12. Find g(g(9)).

9. If f(x) = −10x + 13 and g(x) = −15x – 15, find g(−7) × g(10) − f(8) × f(3).