Functions – Questions

1) Find an expression for $f(g(x))$ given that $f(x) = x - 2,\ g(x) = 4x - 4$

2) Find an expression for $f(g(x))$ given that $f(x) = x^2 - 1,\ g(x) = 3x - 2$

3) Find an expression for $f(g(x))$ given that $f(x) = 3x + 4,\ g(x) = x^2$

4) Find an expression for $f(g(x))$ given that $f(x) = 1 - 3x^2,\ g(x) = x + 1$

5) Find an expression for $f(g(x))$ given $f(x) = 2x^2 - 4x + 5, g(x) = 3 - x$

6) Find an expression for $f(g(x))$ given that $f(x) = x^2 + 1, g(x) = 3x - 4$

7) What is the inverse of the function $f(x) = 6x - 2$?

8) What is the inverse of the function $g(x) = 5 - 3x$?

9) What is the inverse of the function $h(x) = \frac{1}{4}(x + 3)$?

10) What is the inverse of the function $f(x) = \frac{1}{4}(x^2 - 1)$?

11) What is the inverse of the function $h(x) = 4x^3 - 5$?

12) What is the inverse of the function $g(x) = \frac{\sqrt{2x+14}}{2}$?

Functions – Solutions

Q1) $f(g(x)) = 4x - 6$

Q2) $f(g(x)) = 9x^2 - 12x + 3$

Q3) $f(g(x)) = 3x^2 + 4$

Q4) $f(g(x)) = -3x^2 - 6x - 2$

Q5) $f(g(x)) = 2x^2 - 8x + 11$

Q6) $f(g(x)) = 9x^2 - 24x + 17$

Q7) $f^{-1}(x) = \frac{x+2}{6}$

Q8) $g^{-1}(x) = \frac{5-x}{3}$

Q9) $h^{-1} = (4x - 3)$

Q10) $f^{-1}(x) = \sqrt{4x+1}$

Q11) $h^{-1}(x) = \sqrt[3]{\frac{x+5}{4}}$

Q12) $g^{-1}(x) = 2x^2 - 7$