G. Further Examples ➔ Working with Algebraic Expressions

Consider these three functions ➔ $f(x) = x^2 - 3x$; $g(x) = 1 - 2x$; $h(x) = \frac{1}{4}(2)^x + 1$ as you answer the following questions:

(a) Evaluate f(4), g(4) and h(4)

(b) Evaluate f(0), g(0) and h(0) ➔ what is the significance of these values?

(c) Evaluate h(-1) as well as h(-4)

(d) Show that f(2) > g(2) and explain what this means about the graphs of f(x) and g(x) at x = 2.

(e) Determine g(3b) and h(3b)

(f) State the range of y = g(x) if the domain of g(x) were $\{x \in R \mid -2 \leq x < 5\}$

(g) Determine f(c + 2) – g(c + 2) as well as h(c + 2) (and simplify the resultant expression ➔ AP/HL Extension)

(h) AP/HL question ➔ GRAPHIC ANALYSIS using ALGEBRA ➔ Determine the range of y = f(x) and the range of y = h(x).

(i) EXTENSION QUESTIONS:

a. Solve the equation f(x) = g(x) for x.

b. Determine the value of the difference quotient $\frac{g(2+h)-g(2)}{(2+h)-2}$ and explain its significance.

c. What happens to the values of h(x) as x values get more and more negative?

d. Solve the inequality h(x) < 0.

H. Homework

From the Nelson 11 Text, Chapter 1.2 on Function Notation, page 22 – 24, Q1,2,3,6,8,10,11,13,16ab AP/HL Extensions ➔ Q17,20