MODULE 2

FORMULAS AND GRAPHS, ROOTS, MAXIMA AND MINIMA

Name:_____ Points:_____

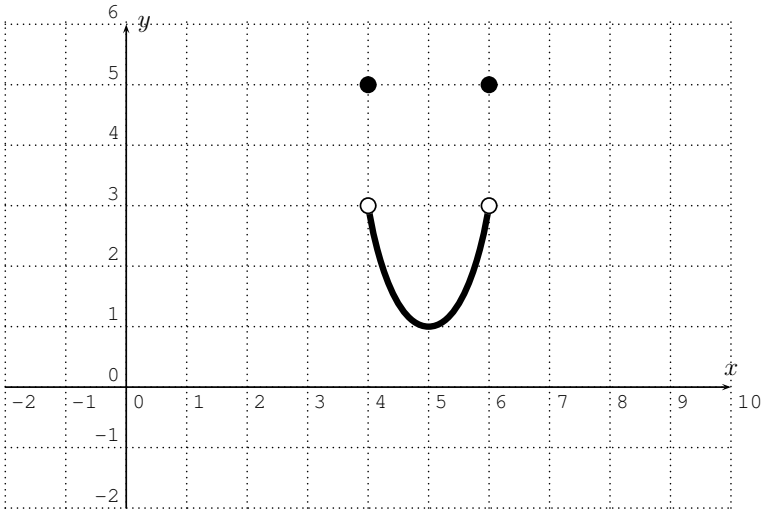
Exercise 1.

(a) Find the difference quotient $\frac{f(x+h)-f(x)}{h}$ for $f(x) = 3x^2 + 2x - 1$.

(b) Find the difference quotient $\frac{f(x+h)-f(x)}{h}$ for $f(x) = x^3$.

(c) Find the difference quotient $\frac{f(x)-f(a)}{x-a}$ for $f(x) = x^2$.

Exercise 2. Consider the graph of a function $y = f(x)$ displayed below.



Find the following data.

(a) Domain of f =

(b) Range of f =

(c) $f(5) =$

(d) $f(6) =$

(e) $f(7) =$

(f) $f(4.5) =$

Exercise 3.

(a) Find all roots of $f(x) = x^3 - 3x - 1$ and approximate them to the nearest hundredth.

(b) Find all maxima and minima of $f(x) = x^4 - 5x^2 + 4$ and approximate them to the nearest thousandth.

(c) Find all maxima and minima of $f(x) = x^3 - 12x^2 - 100x + 1200$ and approximate them to the nearest tenth.