MAS406 Second-Degree Functions

1. Determine the equation of the quadratic function associated with each table of values shown below.

a)

x	*y*
–1	–8
0	–10
3	–8
5	0
6	6

b)

x	*y*
1	–2
2	3
4	7
7	–2
8	–9

2. For each of the functions in Question 1, determine…

a) $f(-3)$

b) $f(9)$

3. The following table provides information about the first four functions in a series of second-degree polynomial functions. A pattern is evident in the first four functions and continues in the fifth function.

Function f_1	The rule of the function f_1 is $f_1(x) = 3(x-1)^2 - 27$
Function f_2	The zeros of function f_2 are –3 and 3. Also, $f_2(2) = -15$
Function f_3	$f_3(-5) = 21$, $f_3(-1) = -27$ and $f_3(3) = 21$
Function f_4	$f_4(x) = 3x^2 + 12x - 15$
Function f_5	?

What is the rule of function f_5 in this series?

4. The following table provides information about the first four functions in a series of second-degree polynomial functions. A pattern is evident in the first four functions and continues in the fifth function.

Function f_1	The rule of function f_1 is $f_1(x) = 2(x+3)^2 - 4$
Function f_2	$f_2(-6) = 12, \quad f_2(-3) = -6, \quad and \quad f_2(0) = 12$
Function f_3	Function f_3 is negative over the interval $[-5, -1]$. The initial value of f_3 is 10.
Function f_4	$f_4(x) = 2x^2 + 12x + 8$
Function f_5	?

What is the rule of function f_5 in this series?