CONCORDIA UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE AND SOFTWARE ENGINEERING
SOEN 6011: SOFTWARE ENGINEERING PROCESSES: SECTION CC
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PROJECT

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PROBLEM 1: Give a brief description, not exceeding one page, of your function, including the domain and co-domain of function, and the characteristics that make it unique.

SOLUTION: x^y

INTRODUCTION:

The function x^y is a power function. In a power function, we have a base and an exponent. Here, x is the base and y is the power or exponent. The basic definition of a number written in exponential notation states that the base should be multiplied by itself the number of times indicated by the exponent. This is also called exponentiation, a mathematical operation. Exponentiation can be used in many fields, mainly in computer science and here we are using it to build a scientific calculator.

GRAPH:

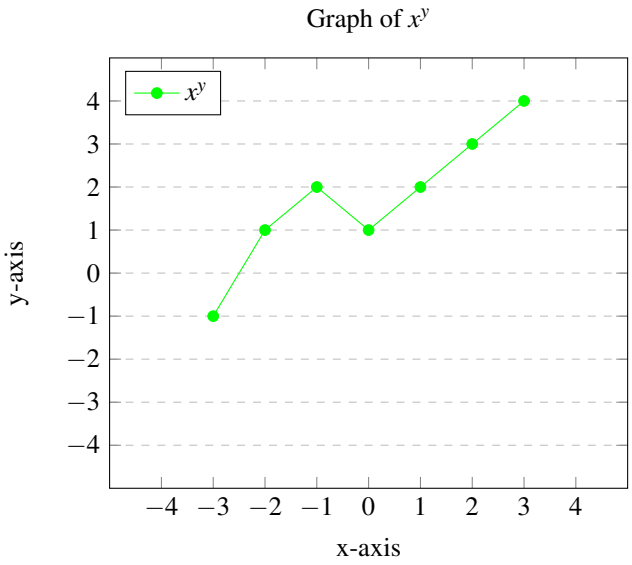

Figure 1: A graph for the function x^y plotted with different x and y values.

CHARACTERISTICS:

1. In an exponential graph, the ”rate of change” increases or decreases across the graph.
2. The function x^y is not a one-to-one function.
3. Substituting 0 for y, we get x^0 is 1, irrespective of the value of x.
4. Likewise, substituting 1 in place of y, the function will x^0 which will yield a value of x itself.

DOMAIN:

The domain is a set of all real numbers, R.

$$(x, y) \in R^2 : (x \geq 0 \text{ and } y \neq 0) \text{ or } x > 0$$

CO-DOMAIN:

The co-domain is also a set of all real numbers, R.