

Practice Problem 1

x	-3	-2	-1	0	1	2
g(x)	11	9	6	2	-3	-9

The table gives values of a polynomial function g for selected values of x . Which of the following is consistent with the given data?

- (a) g could be cubic because the rate of rates of change is constant over consecutive equal length input values.
- (b) g could be linear because the rate of change is constant over consecutive equal length input values.
- (c) g could not be determined by the given data.
- (d) g could be quadratic because the rate of change is linear over consecutive equal length input values.

Practice Problem 2

x	-3	-2	-1	0	1	2
g(x)	11	9	6	2	-3	-9

What is a possible degree of the polynomial function g with reason given?

- (a) 1, due to the first differences being constant over consecutive equal length input values.
- (b) 2, due to the second differences being constant over consecutive equal length input values.
- (c) 3, due to the third differences being constant over consecutive equal length input values.
- (d) 4, due to the fourth differences being constant over consecutive equal length input values.

Practice Problem 1 Solution:

(d) g could be quadratic because the rate of change is linear over consecutive equal length input values.

Since the input values (x) are increasing by the same value (1), the common differences over consecutive equal length input values can represent the rate of change and can be used to identify the polynomial. Since the first common difference is linear and the second common difference is constant, the polynomial function could be quadratic.

Practice Problem 2 Solution:

(b) 2, due to the second differences being constant over consecutive equal length input values.

See the reason above, since the second differences are constant, this represents a second degree polynomial function.

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