

6.5 Key Concepts 3 First Differences for Non-Linear Relations Worked Example

Example: Use first differences to determine whether the relation shown in the table is linear or non-linear.

Solution: Calculate the first differences. Since the first differences do not have a constant value, the relation is non-linear.

x	y	First Differences
-1	-4	
0	-1	3
1	0	1
2	1	1

Practice:

1. Use first differences to determine whether the relation shown in the table is linear or non-linear.

x	y
-1	-2
0	2
1	6
2	10

2. Use first differences to determine whether the relation shown in the table is linear or non-linear.

x	y
-1	-1
0	0
1	1
2	8

Answers: 1. linear 2. non-linear