

Unit 7b

Comparing Linear, Exponential & Quadratic Function

To recognize if a function is linear, quadratic, or exponential without an equation or graph, look at the differences of the y-values.

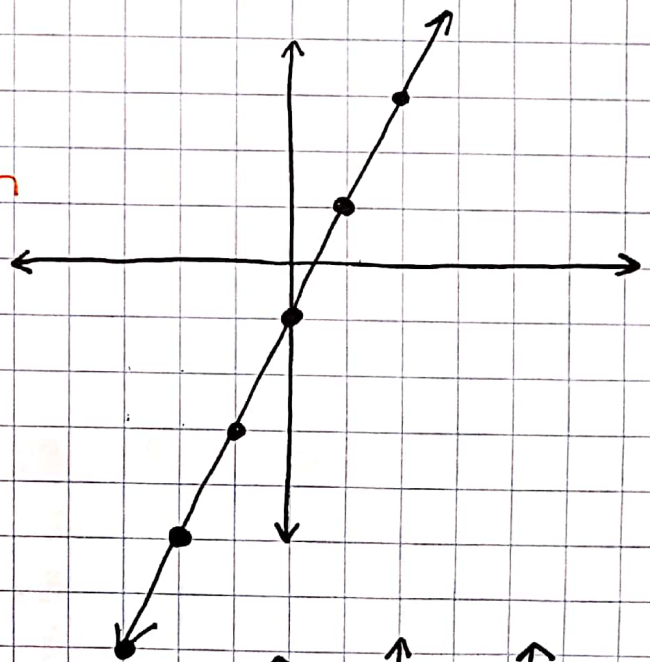
- Constant difference, the graph is linear (adding or subtracting the SAME number)
- 2nd Constant difference, the graph is quadratic
- Multiplying or dividing the same number, the graph is exponential

Examples

1)

x	y
-3	-7
-2	-5
-1	-3
0	-1
1	1
2	3
3	5

Linear Function

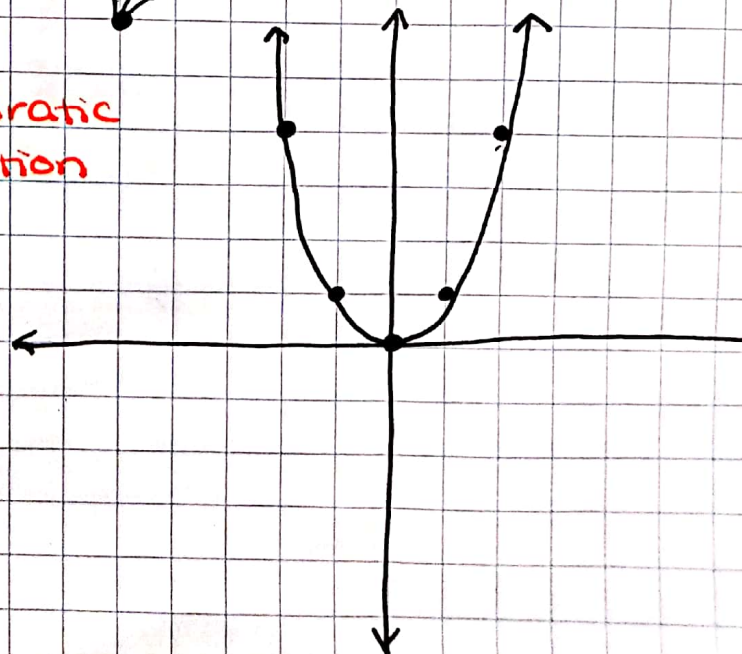


2)

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

1st difference
2nd difference

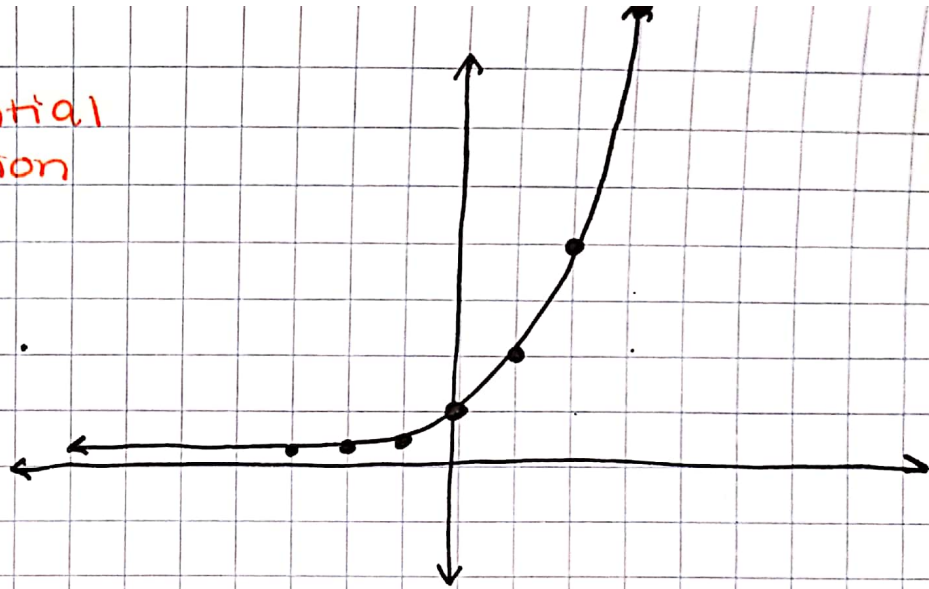
quadratic function



3)

x	y
-3	$\frac{1}{8}$
-2	$\frac{1}{4}$
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

Exponential Function



You Try!

1) Linear

x	y
-3	14
-2	10
-1	6
0	2
1	-2
2	-6
3	-10

2) exponential

x	y
-3	$\frac{1}{2}$
-2	1
-1	2
0	4
1	8
2	16
3	32

3) quadratic

x	y
-3	21
-2	12
-1	5
0	0
1	-3
2	-4
3	-3

4) linear function

x	y
-3	-16
-2	-13
-1	-10
0	-7
1	-4
2	-1
3	2

1st difference

2nd difference