

### 3A.3. Recognizing Functions from Tables

10F 1

Example. For each table (a) through (d), find the function which represents the table.

(a)

x	y
0	11
1	6
2	3
3	2
4	3
5	6
6	11

(b)

x	y
0	3
1	5
2	7
3	9
4	11

(c)

x	y
-1	0.25
0	1
1	4
2	16
3	64

(d)

x	y
0.25	-1
1	0
4	1
16	2
64	3

#### Solution:

(a) It looks like a parabola with vertex  $(3, 2) \Rightarrow$

$$y = (x-3)^2 + 2 = x^2 - 6x + 9 + 2 = x^2 - 6x + 11 \leftarrow$$

one may check that this equation does reproduce the table.

(b) The y-values increase by 2 every time  $\Rightarrow$  it is a line.

$$y = 2x + 3 \leftarrow$$

one may check that this equation does reproduce the table.

(c) It looks like an exponential function.

$$y = 4^x \leftarrow$$

One may check that this equation does reproduce the table.

(d) x & y are switched from table (c)  $\Rightarrow$  it is a logarithm.

$$y = \log_4 x \leftarrow$$

one may check that this equation does reproduce the table.