

6.1 Representing Patterns

Ex. Write an equation for each relationship:

Table of Values

input $\rightarrow$

x	y
0	1
1	3
2	5
3	7

$\leftarrow$ output

$y = 2x + 1$

$-1 \rightarrow 14$
 $\rightarrow 0 \rightarrow 11$

x	y
1	8
2	5
3	2
4	-1

$+1 \downarrow$ -3

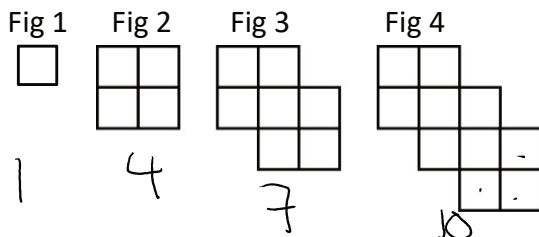
$y = -3x + 11$

Are they linear?

Yes

- exponent on input (x) is 1
- consistent change to both input (x) and output (y)

Ex. Given the pattern:



a) Describe how the pattern grows.

Starting 1 square each subsequent figure adds 3 squares

b) Create a table of values to represent the relationship between the number of squares and the figure number.

figure #	# of squares
1	1
2	4
3	7
4	10

c) Write an **expression** and an **equation** to represent this pattern.

$3f - 2$ $q = 3f - 2$

d) How many squares in the 12th figure?

$q = 3(12) - 2 = 34 \text{ squares}$

e) Which figure has 106 squares? Verify your answer.

$106 = 3f - 2$
 $108 = 3f$

$\frac{108}{3} = f$
 36^{th}

$q = 3(36) - 2$
 $= 106 \checkmark$