

Linear Patterns

- Linear functions take the form $f(x) = mx + b$, where m is the rate of change and b is the start.
- Find m by finding out how the pattern grows.
- Find b by finding out what Figure 0 would look like. (Fig. 0 is the start.)

Ex. 1

a. Find the pattern. Draw Figure 4.

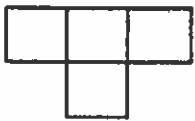


Figure 1

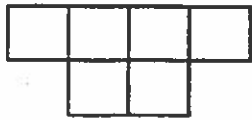


Figure 2



Figure 3



figure 4

b. Explain how you see the figure growing. Share with your group/the class. Write at least TWO ways.

- It became to increase every square
- my figure 4 I drew, I did 6 squares @ the top and 4 squares @ the bottom. Only because for figure 1 it was 3 @ the top and 1 @ the bottom, then figure 2 it was 4 @ the top and 2 @ the bottom, next figure 3 it was 5 @ the top and 3 @ bottom. Finally figure 4 it was 6 @ the top and 4 @ the bottom.

c. How many blocks would a Figure 0 have? Draw what you think it would look like.



→ 2 blocks in Fig. 0 no matter how you see it

d. Make an input/output table for the pattern.

How many blocks in Fig. 10? Fig. 50?

Figure #	# of Blocks
0	2
1	4
2	6
3	8
4	10
10	22
50	

} +2
 } +2
 } +2
 } +2

e. Write the linear function rule for the pattern.

$f(x) = mx + b$
 rate of change
 $m = 2$
 starting point (Figure 0)
 $b = 2$
 $f(x) = 2x + 2$

→ another way to see it

$f(x) = 2(x+1)$

distribute $2(x+1)$
 $f(x) = 2x + 2$

• multiply the # after it
 by 2