

## Questions on 1.3? We will take our quiz soon!

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Topic: Interpreting recursive equations to write a sequence

**Write the first five terms of the sequence.**

17.  $f(0) = -5; f(n+1) = f(n) + 8$       18.  $f(0) = 24; f(n+1) = f(n) - 5$

$f(0+1) = f(0) + 8$

$(0, -5)$      $f(2) = 11$      $f(1) = -5 + 8$

$(1, 3)$        $f(3) = 19$      $f(1) = 3$

19.  $f(0) = 25; f(n+1) = 3f(n)$       20.  $f(0) = 6; f(n+1) = 2f(n)$

$f(4) = 27$

$f(5) = 35$

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8.50 x 11.00 in

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a. Pattern:  
b. Recursive equation:  
 $(x+2)^2 - 2(x+1)$   
 $(x+2)(x+2) - 2x - 2$

Figure 1 Figure 2

$x^2 + 2x + 2$   
 $x^2 + 2x + 2$   
 $3 = x + 2$   
5  
 $2 = x$

a. Pattern:  
b. Recursive equation:  
 $x^2 + 2(x+1)$   
 $x^2 + 2x + 2$

Figure 3

$x^2 + 2(x+1)$   
 $x^2 + 2x + 2$   
 $5 = x + 2$   
17

a. Pattern:  
b. Recursive equation:  
 $(x+2)^2 - 2(x+1)$   
 $x(x+2) + 2$   
 $x^2 + 2x + 2$

Figure 4

$(x+2)^2 - 2(x+1)$   
 $x(x+2) + 2$   
 $x^2 + 2x + 2$   
 $6 = x + 2$   
26

a. Draw figure 5  
b. Predict the number of squares in figure 30. Show what you did to get your prediction.

5 10 17 26

2 2

Go

Topic: Interpreting recursive equations to write a sequence

Write the first five terms of the sequence.

8.50 x 11.00 in

11. 

x	y
-3	4
-2	0
-1	-2
0	-2
1	0
2	4
3	10

*1st diff is linear*  
*2nd diff is same*

12. 

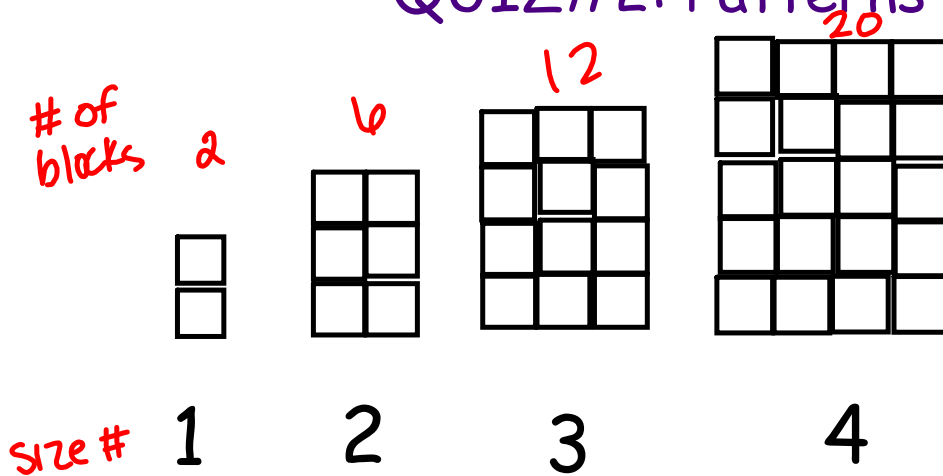
x
-3
-2
-1
0
1
2
3

a. Pattern: *Quadratic*  
 b. Recursive equation: *previous + 2x*

*y = mx + b*  
*y = 2x + 0*  
*y = 2x*

*or*  
 $f(n) = f(n-1) + 2x$

## QUIZ#2: Patterns



1) Is the following pattern linear, exponential, or quadratic?

2) Write an explicit formula for the pattern.

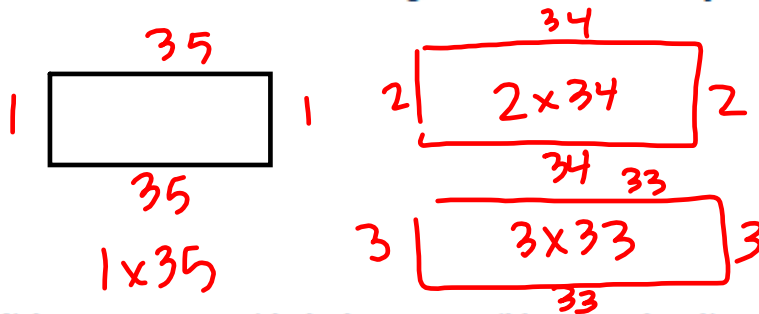
## 1.4 Rabbit Run

### A Solidify Understanding Task

Misha has a new rabbit that she named "Wascal". She wants to build Wascal a pen so that the rabbit has space to move around safely. Misha has purchased a 72 foot roll of fencing to build a rectangular pen.



1. If Misha uses the whole roll of fencing, what are some of the possible dimensions of the pen?



2. If Misha wants a pen with the largest possible area, what dimensions should she use for the sides? Justify your answer.

$$A = 1 \cdot 35 = 35$$

$$A = 2 \cdot 34 = 68$$

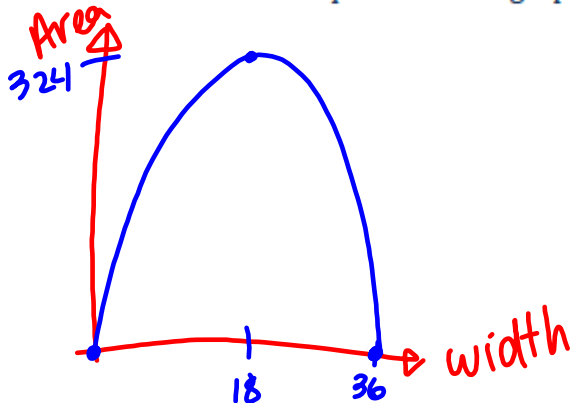
$$A = 3 \cdot 33 = 99$$

$$A = 18 \times 17 = 324$$

$$A = 18(18) = 324$$

Dimensions:  
 $18 \times 18$

3. Write a model for the area of the rectangular pen in terms of the length of one side. Include both an equation and a graph.



$$A = lw$$

$$A = (36-w)w$$

$$\star A = 36w - w^2$$

$$P = 2l + 2w$$

$$72 = 2l + 2w$$

$$\begin{array}{r} -2w \\ \hline \end{array}$$

$$\frac{72 - 2w}{2} = \frac{2l}{2}$$

$$72 - 2w = l$$

$$\frac{72 - 2w}{2} = \frac{72 - 2w}{2} = l$$

$$\frac{72 - 2w}{2} = l$$

$$36 - w = l$$

4. What kind of function is this? Why?

5. How does this function compare to the second type of block I logos in *I Rule*?

# Homework/Classwork

Finish 1.4