

Questions on 1.3? We will take our quiz soon!

13.

x	y
-3	24
-2	22
-1	20
0	18
1	16
2	14
3	12

a. Pattern:  
b. Recursive equation:

14.

x	y
-3	48
-2	22
-1	6
0	0
1	4
2	18
3	42

a. Pattern:  
b. Recursive equation:

15.

x	y
-3	1
-2	1
-1	0
0	1
1	4
2	9
3	16

a. Pattern: Quadratic  
b. Recursive equation:  
previous + mx + b  
previous + 2x + 1

16.

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

Handwritten notes: 1.3 + 5 = 1(1+2), 2.4 + 4 = 2(2+2), 3.5 + 3 = 3(3+2), 4.6 + 2 = 4(4+2).  
y = mx + b  
y = 2x + b  
2nd diff same = linear pattern (1st diff.)  
Quadratic

+2 +2 → Quadratic (x<sup>2</sup>)

Explicit Formula:  $n(n+2) + 2 = n^2 + 2n + 2$

16.

Handwritten calculations for each figure:

- Figure 1:  $1^2 + 1 + 1 + 1 = 1^2 + 2(1) + 2 = 1^2 + 2x + 2$
- Figure 2:  $2^2 + 2 + 2 + 1 + 1 = 2^2 + 2(2) + 2 = 2^2 + 2x + 2$
- Figure 3:  $3^2 + 3 + 3 + 1 + 1 = 3^2 + 2(3) + 2(1) = 3^2 + 2x + 2$
- Figure 4:  $4^2 + 4 + 4 + 1 + 1 = 4^2 + 2(4) + 2(1) = 4^2 + 2x + 2$

$(30)^2 + 2(30) + 2 =$   
 $900 + 60 + 2 =$   
 $962$

Write the first five terms of the sequence.

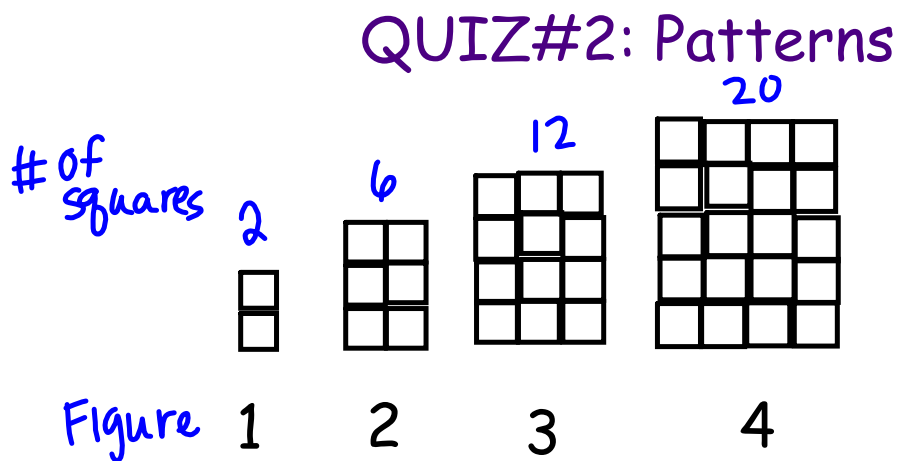
17.  $f(0) = -5; f(n+1) = f(n) + 8$

Handwritten work:

- $(0, -5)$
- $(1, 3)$  —  $f(1) = 3$
- $(2, 11)$  —  $f(2) = 11$
- $(3, 19)$
- $(4, 27)$
- $(5, 35)$

Recursive steps shown:

- $f(0+1) = f(0) + 8$
- $f(1) = -5 + 8$
- $f(1+1) = f(1) + 8$
- $f(2) = 3 + 8$
- $f(2) = 11$



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

2) Write an explicit formula for the pattern.

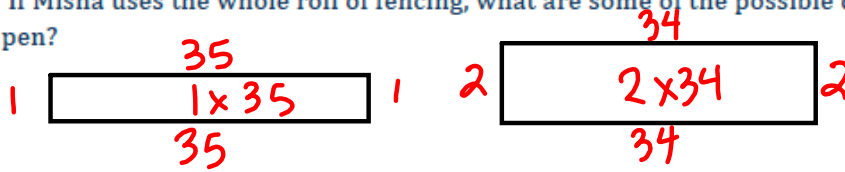
# 1.4 Rabbit Run

## 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.



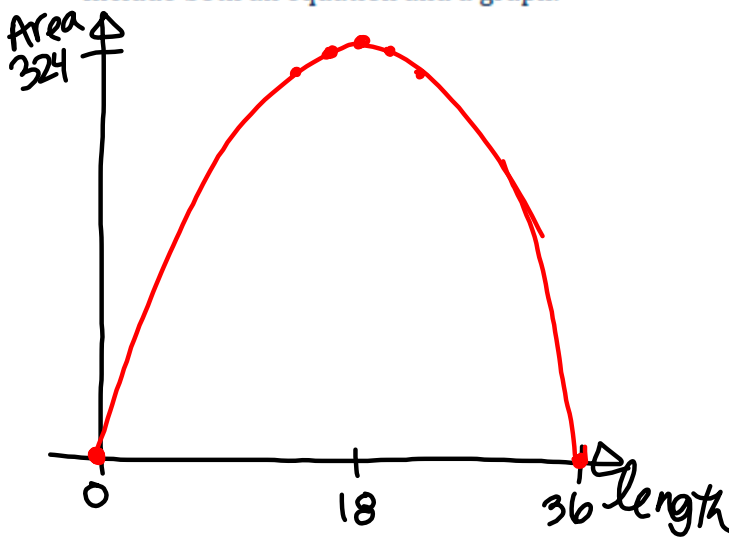
1. If Misha uses the whole roll of fencing, what are some of the possible dimensions of the pen?



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

Dimensions	Area
1x35	35ft <sup>2</sup>
2x34	68ft <sup>2</sup>
⋮	
18x18	324

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.



$$\begin{aligned}
 P &= 2l + 2w \\
 * \frac{72}{2} &= \frac{2l + 2w}{2} \\
 36 &= l + w \\
 -l & \quad -l \\
 \hline
 36 - l &= w \\
 * A &= lw \\
 A &= l(36 - l) \\
 \boxed{A} &= \boxed{36l - l^2}
 \end{aligned}$$

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Group 1

1  
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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?

$3 \times 33$	$9 \times 27$	$15 \times 21$
$4 \times 32$	$10 \times 26$	$16 \times 20 = 320$
$5 \times 31$	$11 \times 25$	$17 \times 19 = 323$
$6 \times 30$	$12 \times 24$	$18 \times 18 = 324$
$7 \times 29$	$13 \times 23$	$19 \times 17 = 323$
$8 \times 28$		

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

... for the area of the rectangular pen in terms of the length of one side.

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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