



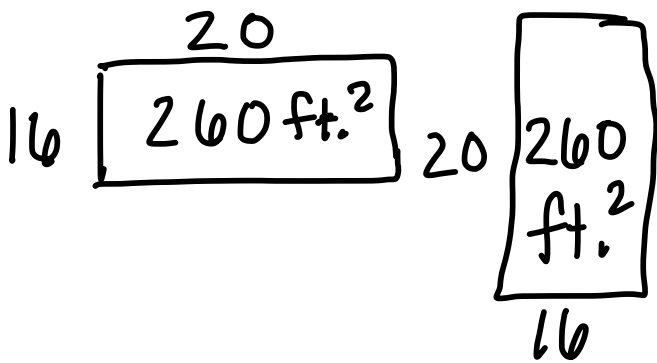
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Lesson 4 Rabbit Run

A Solidify Understanding Task

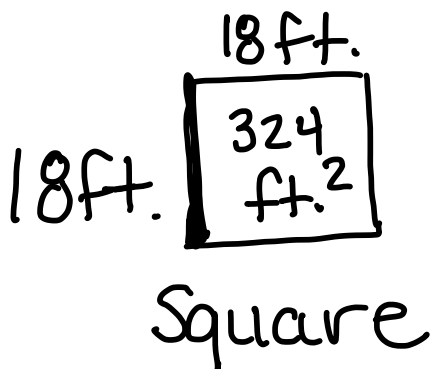
Misha has a new rabbit that she named "Wascal". She wants to build Wascal a pen so that the rabbit has space to move around safely. Misha has purchased a 72 foot roll of fencing to build a rectangular pen.

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



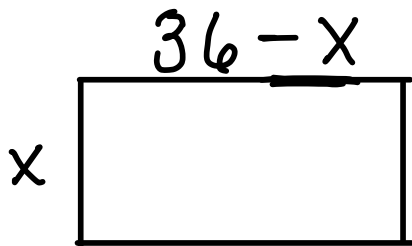
l	w	Area
1	35	35
2	34	68
3	33	99
4	34	132
5	31	155

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



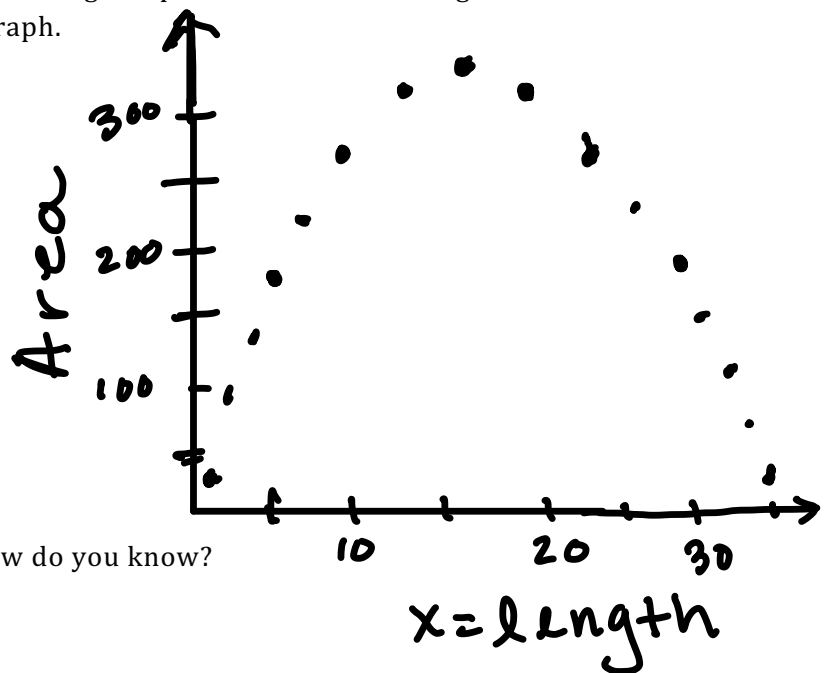
10	26	260
16	20	320
18	18	324
20	16	320
26	10	260
31	5	155
x	$36-x$	$x(36-x)$

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.



$$A = x(36-x)$$

$$A = -x^2 - 36x$$



4. What kind of function is this? How do you know?

Quadratic

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

I Rule

$$f(x) = 7x^2$$

↑
Has an x^2

↖ ↗
Concave up
Has a minimum

Both
Quadratics

Rabbit Run

$$f(x) = x(36-x)$$

↖ ↗
Has two linear factors

$$f(x) = -x^2 - 36x$$

↑
linear term

↖ ↗
Concave down
has a maximum