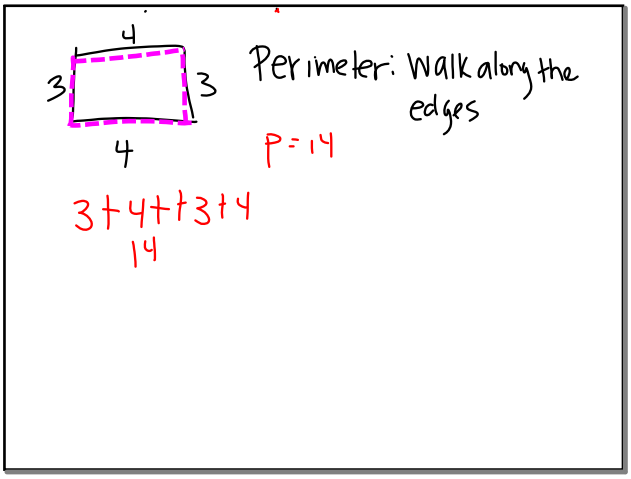

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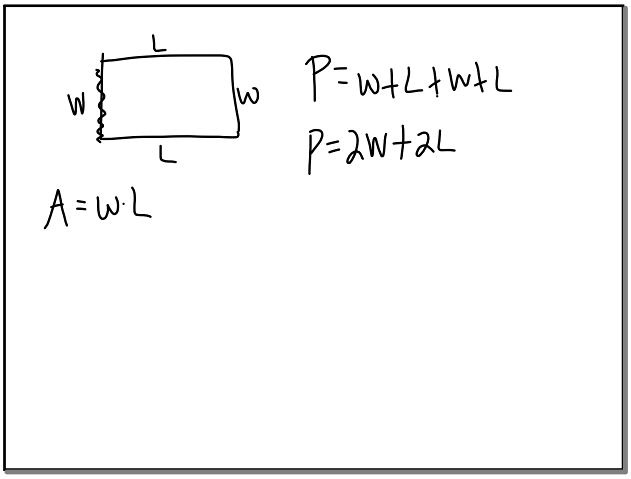

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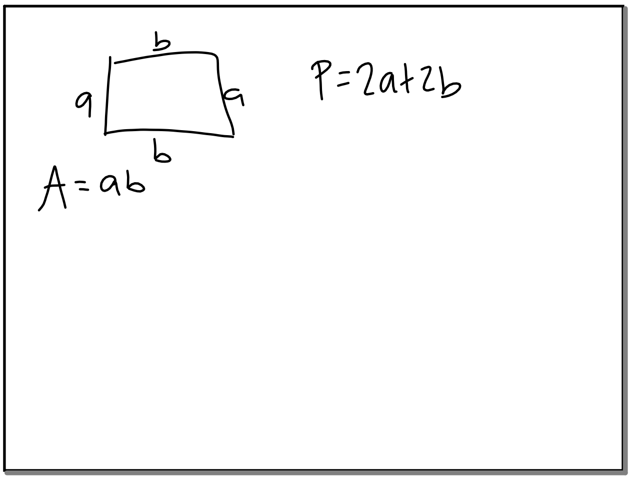

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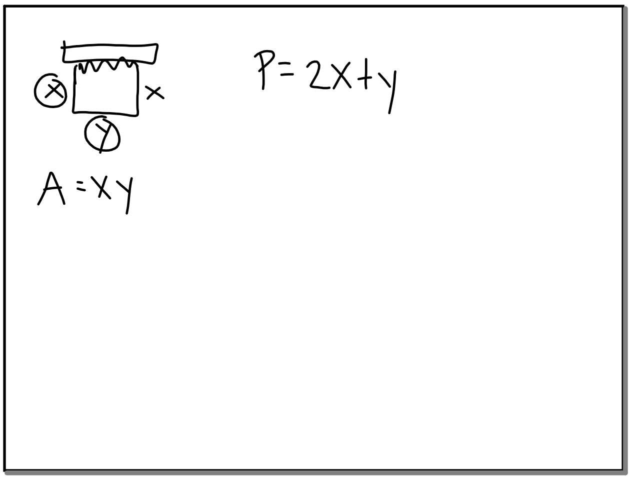

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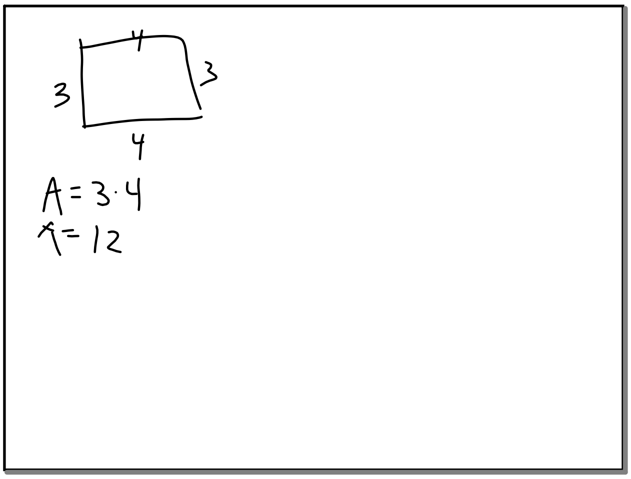

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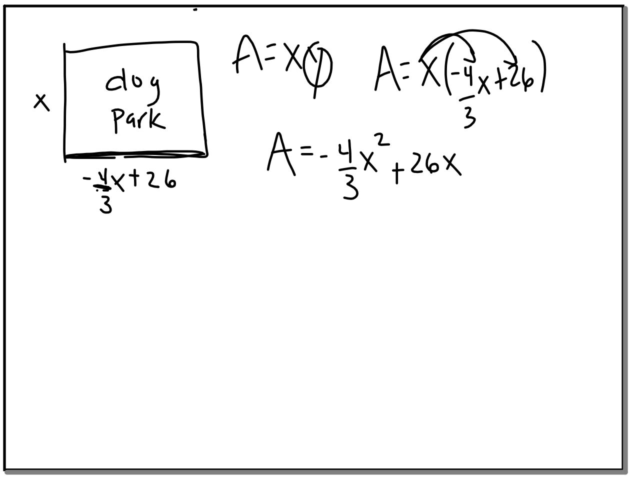

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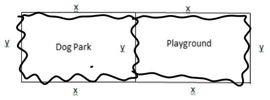
Modeling using Perimeter and Area (in class)

1. John wants to put a fence all the way around a dog park and playground (as shown below). He wants the area of the playground and the dog park to be the same. John has ~~92~~ 78 feet of fencing to work with and wants to use all of the fencing



a) Write an equation for the perimeter of the dog park and playground. ~~Solve the equation for y.~~

$78 = 4x + 3y$

$-4x \quad -4x$

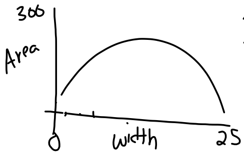
$\frac{3y}{3} = \frac{-4x}{3} + \frac{78}{3}$

$y = -\frac{4}{3}x + 26$

b) Using your equation from part a, write a function for the area of the dog park in one variable.

$A = -\frac{4}{3}x^2 + 26x$

c) Graph the function from part b. (Be sure to label the axes and indicate the scale)



Xmin 0   y-min 0

Xmax 25   y-max 300

Xscl 0   Yscl 0

Jan 6-12:18 PM

d) max

X: 9.75

Y: 126.75

$\frac{126.75}{9.75} = \frac{9.75 \cdot L}{9.75}$

Width: 9.75 ft.
Length: 13 ft.
Area: 126.75 ft^2

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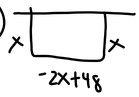
(2)



$48 = 2x + y$

$-2x \quad -2x$

$-2x + 48 = y$

$A = x(-2x + 48)$

$A = -2x^2 + 48x$

$\frac{288}{12}$

x: 12
y: 288

Width: 12 ft.
Length: 24 ft.
Area: 288 ft^2

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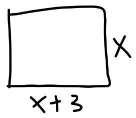


$A = x(x+3)$

$180 = x^2 + 3x$

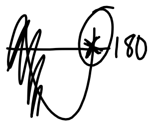
$Y_1 = x^2 + 3x$

$Y_2 = 180$

$x = 12$

Width: x 12 in

length: x+3 12+3 15 in



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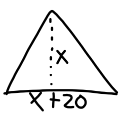
#5 Triangular Tabletop



$x(x+20)$

$\frac{1}{2}(x^2 + 20x)$

$\frac{1}{2}x^2 + 10x$

$A = \frac{1}{2}bh$

base: x+20 50 in

height: x 30 in

$Y_1 = \frac{1}{2}x^2 + 10x$

$Y_2 = 750$

Y-max 800

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Review 12-15

Quadratic Formula

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

(roots, x-int, solutions, solve) Solve for x

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#6 Garden

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Consecutive integers: in a row

1st #: $x = \boxed{-1}$

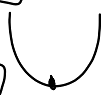
2nd #: $x+1$ $\boxed{0}$

3rd #: $x+2$

$-1+2$

$\boxed{1}$

$(x+1)^2 + x(x+2)$



minimum $x = -1$

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