Starter #2

1. A rocket takes off from a 10 ft platform with an initial velocity of 135 ft/sec. How long is the rocket at least 100 ft in the air?

2. When will the rocket be 30 ft from the ground?

3. How high is the rocket 3 seconds after it is launched?

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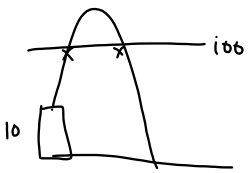

$Y_1 = -16t^2 + 135t + 10$

$Y_2 = 100$

The rocket exceeds 100 ft. between .73 and 7.71 sec after it is launched.

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Rational Inequality Quiz

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Homework Questions...

~~9~~, ~~12~~, 13, 13, 14, 9, ~~8~~, 14, 12

9

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6.6 Maximizing Word Problems

Step 1: Write a two variable equation

Step 2: Isolate y

Step 3: Substitute y to write an equation in one variable

Step 4: Graph to find the answer

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6.6 Modeling Using Perimeter and Area

Perimeter: $P = 2x + 2y$ **Area:** $A = xy$

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

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

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

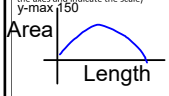
$4x + 3y = 78$ Step 1

$y = -\frac{4x}{3} + 26$ Step 2

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

$A = x(-\frac{4}{3}x + 26)$

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



d) What dimensions will maximize the area of the dog park?

L=9.7 ft

W=13.1 ft

$A = 126.75$ ft^2

Find the maximum

x=9.7

y=126.75

x-length

y-area

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

width=$\frac{\text{area}}{\text{length}}$

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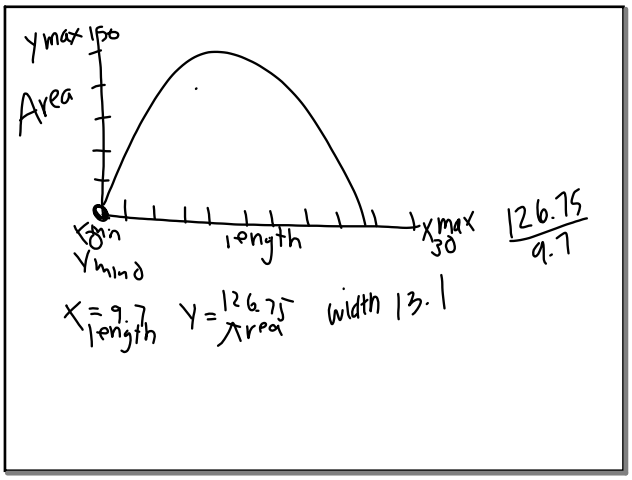

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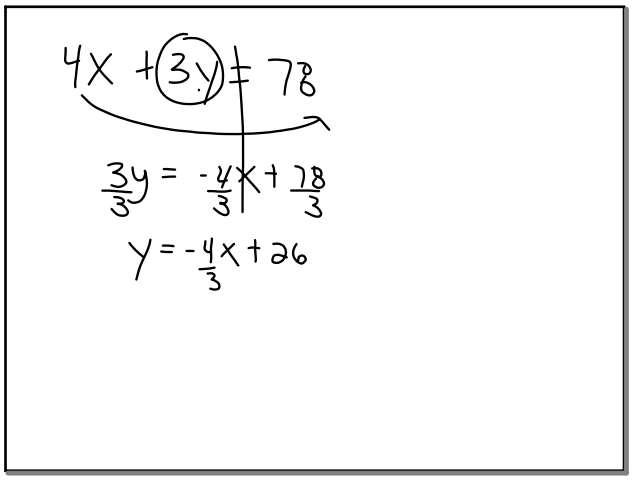

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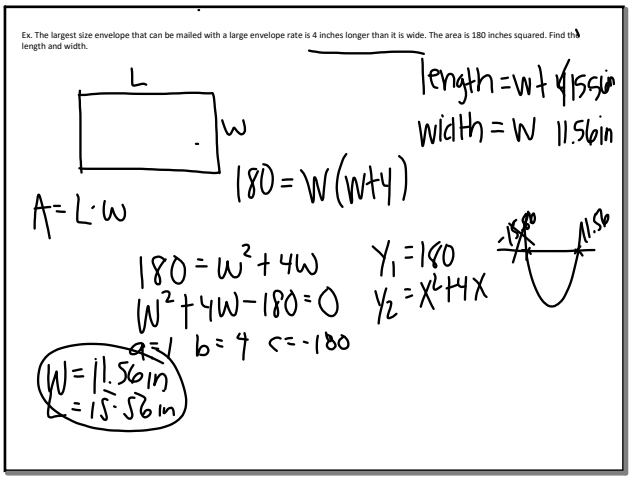

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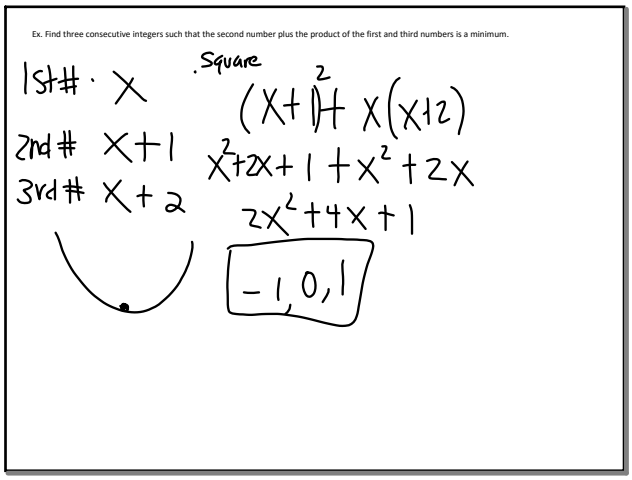

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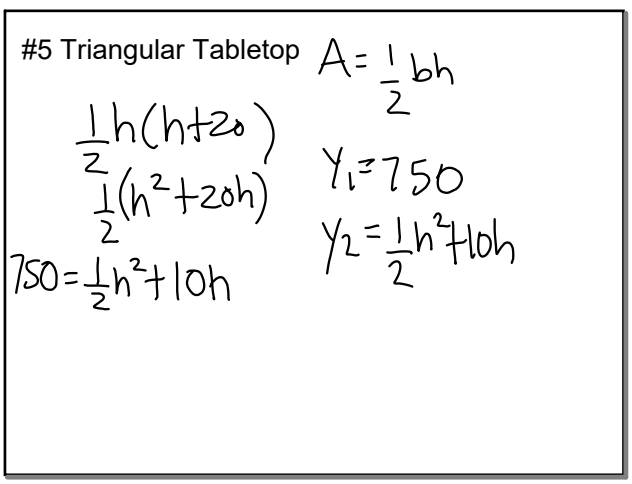

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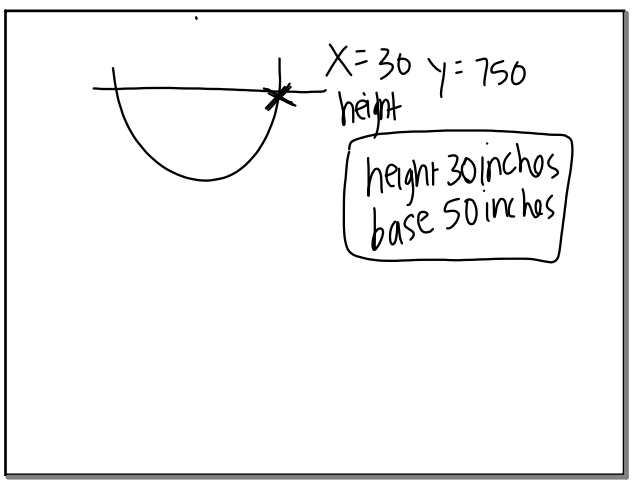

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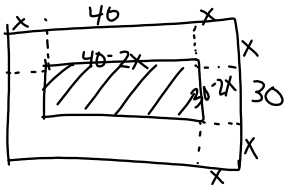
#6 Garden

old Area = 1200

new area = 600



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$(40-2x)(30-2x) = 600$

Y_1 Y_2

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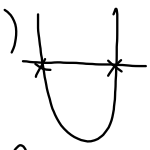
$Y_1 = (40-2x)(30-2x)$

$Y_2 = 600$

$x = 5$

$x = 30$

The walkway is 5 ft.



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