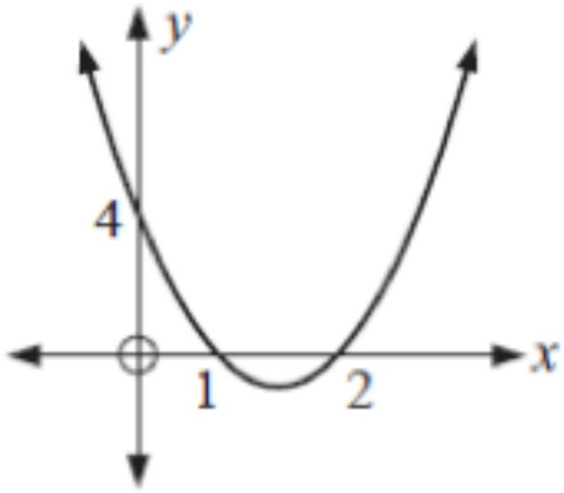
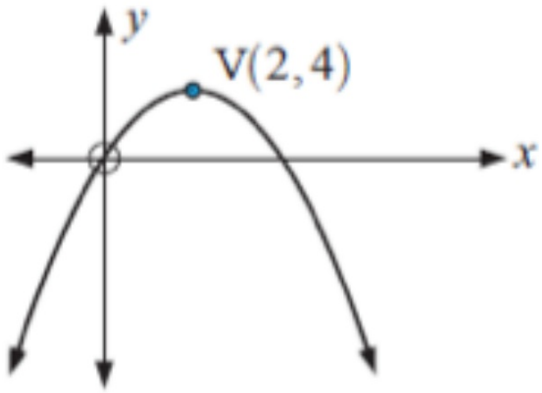
Write the equation of this graph:



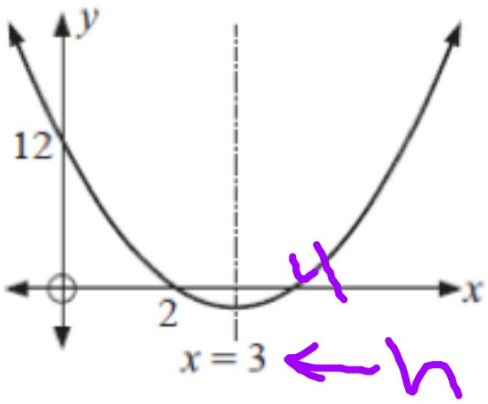
Find, in the form $y = ax^2 + bx + c$, the equation of the quadratic whose graph:

**a** cuts the $x$-axis at 5 and 1, and passes through $(2, -9)$

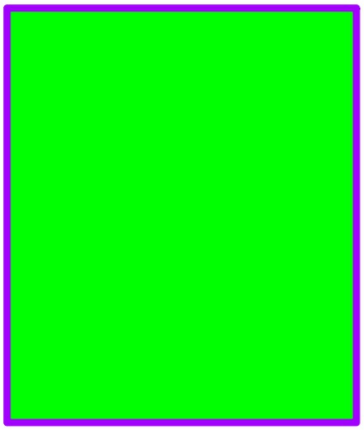

y
V(2,4)
x

Find the quadratic with graph:

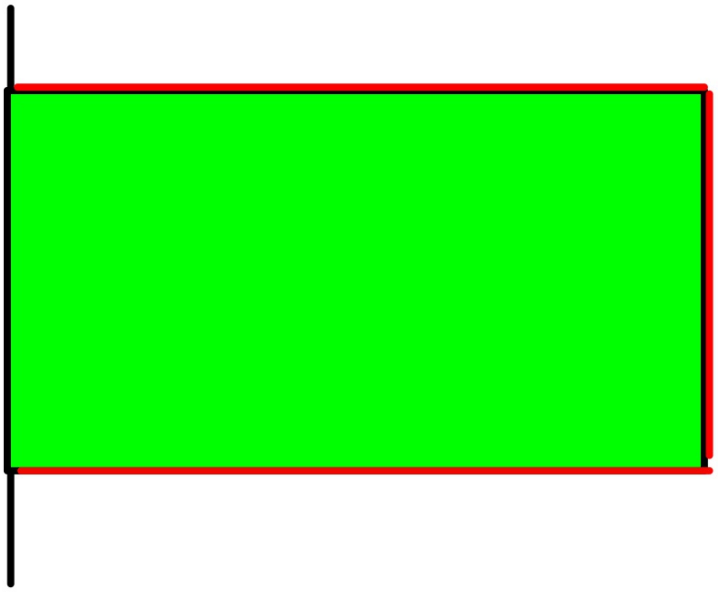
a



A rectangular field has a perimeter of 600 m. Find the dimesions that maximize the area



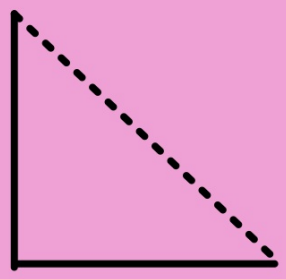
A rectangular field has 1 side that is enclosed with the wall of a building. If 4000 m of fencing is available, find the dimenesions of the maximum area



November 14, 2017

## Warm Up

Is it possible to bend a 12 cm length of wire to form the legs of a right angled triangle with an area of 20 $cm^2$?



Consider the graphs of a quadratic function and a linear function on the same set of axes.

Notice that we could have:

**cutting**
(2 points of intersection)


**touching**
(1 point of intersection)

**missing**
(no points of intersection)

If the graphs meet, the coordinates of the points of intersection of the graphs of the two functions can be found by *solving the two equations simultaneously.*

gradient
=slope

Find the coordinates of the points of intersection of the graphs with equations $y = x^2 - x - 18$ and $y = x - 3$.

$y = 2x + k$ is a tangent to $y = 2x^2 - 3x + 4$. Find $k$.

# Homework: Page 178 1a,b, 3a,b, 6, 7, 8a

**RCISE 6E**

Find the coordinates of the point(s) of intersection of the graphs with equati

**a** $y = x^2 - 2x + 8$ and $y = x + 6$ **b** $y = -x^2 + 3x + 9$ and $y$

Find, by algebraic means, the points of intersection of the graphs with

**a** $y = x^2$ and $y = x + 2$ **b** $y = x^2 + 2x - 3$ and

Find the values of $m$ for which the lines $y = mx - 2$ are tangents t equation $y = x^2 - 4x + 2$.

Find the gradients of the lines with $y$-intercept $(0, 1)$ that are tange $y = 3x^2 + 5x + 4$.

**a** For what values of $c$ do the lines $y = x + c$ never meet the parabo $y = 2x^2 - 3x - 7$?