

The 8 Ways with Quadratics: Part I

I. Guess and Test

In this method, you just guess a starting number and then evaluate the equation, trying to get a True statement.

For the equation: $3x^2 = 363$
 Let $x = 10$
 $3 * 10^2 = 363$
 $3 * 100 = 363$
 $300 = 363$ False (off by 63)

Keep trying other numbers until you get one of the answers, and then look for the other, if you think their might be one.

II. The Algebra Way

Use factoring as needed and then apply the steps of solving an equation.

$$\frac{3x^2}{3} = \frac{363}{3}$$

$$x^2 = 121$$

$$x = \pm\sqrt{121}$$

$$x = \pm 11$$

III. Graph

Place the left side of the equation in Y_1 and the right side in Y_2 .

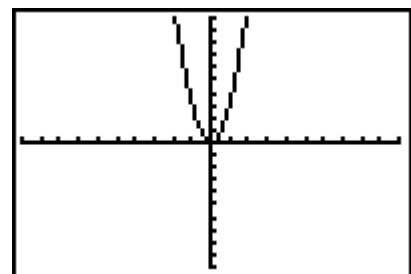
Make sure all the Plots are off and then do **q** as a starting place.

```

Plot1 Plot2 Plot3
\Y1=3X^2
\Y2=363
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=
  
```

```

MEMORY
1:ZBox
2:Zoom In
3:Zoom Out
4:ZDecimal
5:ZSquare
6:ZStandard
7:ZTrig
  
```

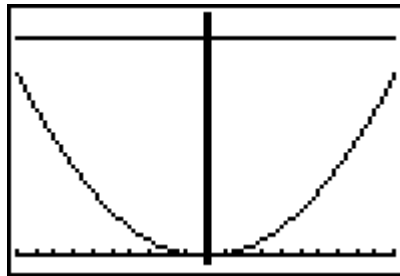


Adjust the **p** until you get the correct view, showing the intersections.

```

WINDOW
Xmin=-10
Xmax=10
Xscl=1
Ymin=-10
Ymax=400
Yscl=1
Xres=1

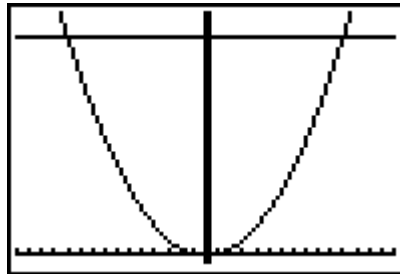
```



```

WINDOW
Xmin=-15
Xmax=15
Xscl=1
Ymin=-10
Ymax=400
Yscl=1
Xres=1

```

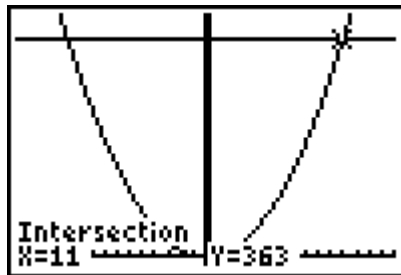
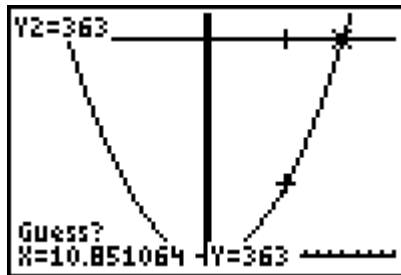
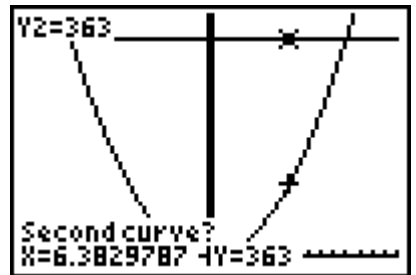
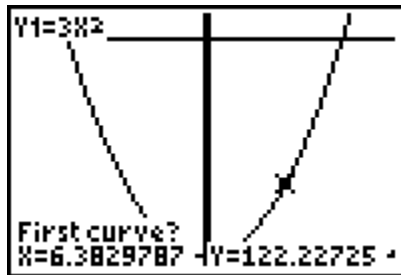


Now request the Intersection by pressing \mathbf{y} [CALC] and selecting option 5:intersect from the CALCULATE Menu. Identify the required points and report the answers.

```

CALCULATE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:∫f(x)dx

```



Report these values (X and Y) and then repeat for other intersections.