

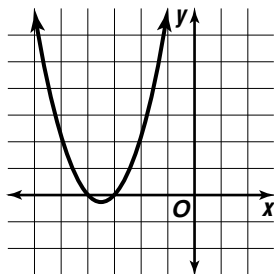
## Study Guide

**Solving Quadratic Equations by Graphing**

A **quadratic equation** is an equation in which the value of the related quadratic function is 0. The solutions of a quadratic equation are called the **roots** of the equation. The roots of a quadratic equation can be found by graphing the related quadratic function and finding the  $x$ -intercepts or **zeros** of the function.

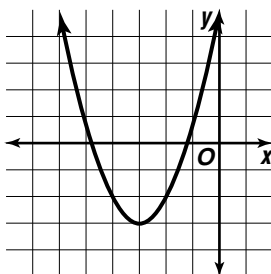
**Examples:** Solve each equation by graphing. If exact roots cannot be found, estimate the roots by stating the consecutive integers between which the roots lie.

a.  $x^2 + 7x + 12 = 0$

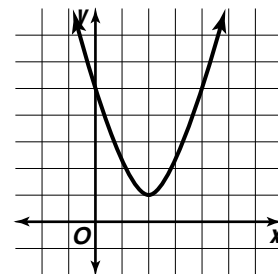


-3 and -4

b.  $x^2 + 6x + 6 = 0$

between -5 and -4 and  
between -2 and -1

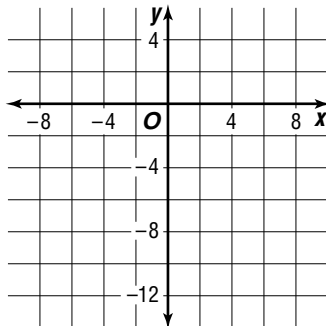
c.  $x^2 - 4x + 5 = 0$



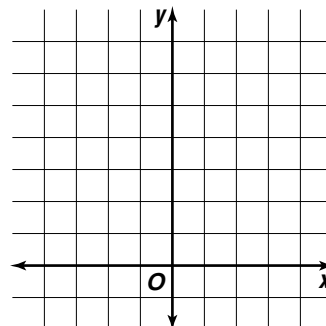
no real roots

**Solve each equation by graphing. If exact roots cannot be found, state the consecutive integers between which the roots lie.**

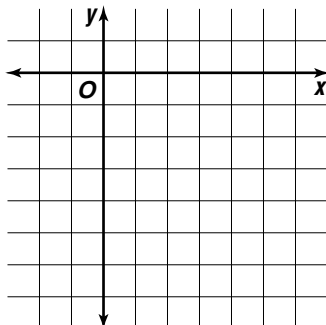
1.  $x^2 - x - 12 = 0$



2.  $x^2 + 4 = 0$



3.  $4x^2 - 12x + 3 = 0$



4.  $4x^2 = 35 - 4x$

