

9.2 Quadratic Inequalities in One Variable

A quadratic inequality in one variable may be written in one of the following four forms:

$$ax^2 + bx + c < 0$$

$$ax^2 + bx + c \leq 0$$

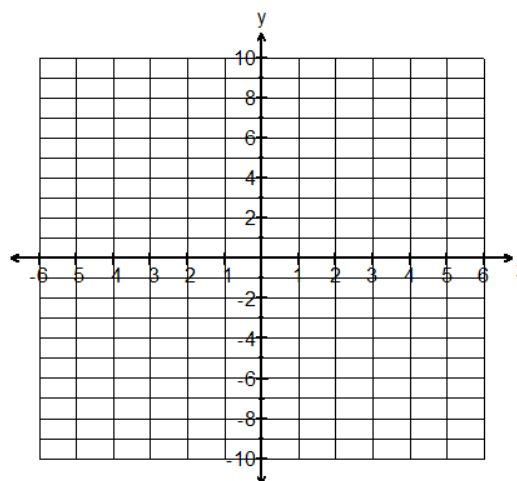
$$ax^2 + bx + c > 0$$

$$ax^2 + bx + c \geq 0 \quad \text{where } A, B, \text{ and } C, \text{ are real numbers and } a \neq 0$$

You can solve quadratic inequalities graphically or algebraically. The solution set can have no values, one value, or an infinite number of values.

Ex. 1 Solve $x^2 - 2x - 3 \leq 0$

Method 1: Graphing



Ex. 1 Solve $x^2 - 2x - 3 \leq 0$

Method 2: Number line

Method 3: Roots and test points

Ex 2. Solve $x^2 - 10x + 16 \leq 0$

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Ex. 3 Solve $-x^2 + x + 12 < 0$

Example 4 Solve $-x^2 + x + 12 < 0$.

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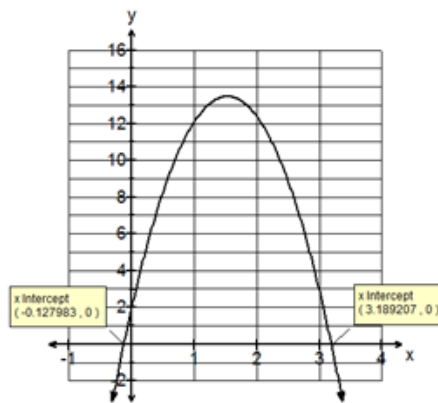
Ex. 5 Solve $-x^2 + 3x + 10 < 0$

Ex. 6 Solve $2x^2 - 7x > 12$

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Ex 7 Solve $x^2 - 4x > 10$.

Ex. 8 If a baseball is thrown from a height of 2 meters above the ground, the inequality $-4.9t^2 + 15t + 2 > 0$ models the time, t , in seconds, that the baseball is in flight. During what time interval is the baseball in flight?



Key Ideas p. 484

Assign: p. 484 - 487 #s 1, 3(ac), 4(ab), 5(abc), 8(ab),
9(bd), 15(ab)