# 3.3 Quadratic Inequalities

# Procedure to solve quadratic inequalities algebraically

1. Write the inequality in the form $ax^2 + bx + c \geq 0$
2. Factor (or use the quadratic formula) to get the roots
3. Plot the roots on a number line
4. Pick a value from each interval on the number line and plug it into the quadratic to find the sign of the expression
5. Choose the intervals carrying the appropriate sign
6. Write your answer in interval notation

# Don't forget!

- A strict inequality doesn't include the endpoints, so use parentheses.
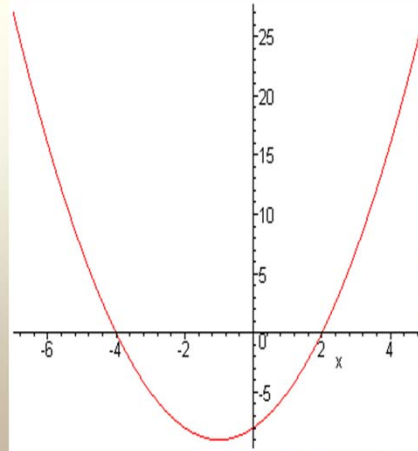- A weak inequality includes the endpoints, so use brackets.

# Example

Use the graph of *f* to
solve the inequality:

a. $f(x) > 0$

b. $f(x) \le 0$

# Examples

- Solve $2x^2 + 5x + 2 \leq 0$

- Solve $x^2 - 3x - 10 < 0$

- Solve $5x^2 \leq 10 - 5x$