

4

CHAPTER REVIEW



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- Multi-Language Glossary
- Vocabulary practice

REVIEW KEY VOCABULARY

- quadratic function, p. 236
- standard form of a quadratic function, p. 236
- parabola, p. 236
- vertex, p. 236
- axis of symmetry, p. 236
- minimum, maximum value, p. 238
- vertex form, p. 245
- intercept form, p. 246
- monomial, binomial, trinomial, p. 252
- quadratic equation, p. 253
- standard form of a quadratic equation, p. 253
- root of an equation, p. 253
- zero of a function, p. 254
- square root, p. 266
- radical, radicand, p. 266
- rationalizing the denominator, p. 267
- conjugates, p. 267
- imaginary unit i , p. 275
- complex number, p. 276
- standard form of a complex number, p. 276
- imaginary number, p. 276
- pure imaginary number, p. 276
- complex conjugates, p. 278
- complex plane, p. 278
- absolute value of a complex number, p. 279
- completing the square, p. 284
- quadratic formula, p. 292
- discriminant, p. 294
- quadratic inequality in two variables, p. 300
- quadratic inequality in one variable, p. 302
- best-fitting quadratic model, p. 311

VOCABULARY EXERCISES

1. **WRITING** Given a quadratic function in standard form, explain how to determine whether the function has a maximum value or a minimum value.
2. Copy and complete: A(n) ? is a complex number $a + bi$ where $a = 0$ and $b \neq 0$.
3. Copy and complete: A function of the form $y = a(x - h)^2 + k$ is written in ?.
4. Give an example of a quadratic equation that has a negative discriminant.

REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 4.

4.1

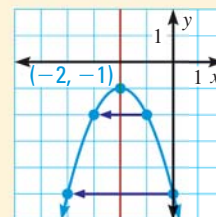
Graph Quadratic Functions in Standard Form

pp. 236–243

EXAMPLE

Graph $y = -x^2 - 4x - 5$.

Because $a < 0$, the parabola opens down. Find and plot the vertex $(-2, -1)$. Draw the axis of symmetry $x = -2$. Plot the y -intercept at $(0, -5)$, and plot its reflection $(-4, -5)$ in the axis of symmetry. Plot two other points: $(-1, -2)$ and its reflection $(-3, -2)$ in the axis of symmetry. Draw a parabola through the plotted points.



EXERCISES

Graph the function. Label the vertex and axis of symmetry.

5. $y = x^2 + 2x - 3$

6. $y = -3x^2 + 12x - 7$

7. $f(x) = -x^2 - 2x - 6$

EXAMPLE 3
on p. 238
for Exs. 5–7