Name _____ Class _____ Date _____

Chapter Practice

Chapter 5

For Exercises 1–7, choose the correct letter.

1. Which of the following is the equation of a parabola?

A $y = 3(x - 2)^2$
B $y = 4^2 - 3$
C $y = |x - 4|$
D $y = 3x^2 + 4x^2 - 5x - 7x^2$
E none of the above

2. Which of the following is the axis of symmetry of the graph $y = 3(x - 4)^2 + 2$?

A $x = 2$ **B** $y = 3$
C $x = 3$ **D** $x = 4$
E $y = x$

3. Which of the following has a graph with a vertex of $(1, 7)$?

A $y = x^2 + x + 7$
B $y = -3x^2 + 6x + 4$
C $y = x^2 + 7x - 1$
D $y = 3x^2 - 6x + 12$
E none of the above

4. Which of the following is true?

A A quadratic function with two zeros has two y-intercepts.
B A quadratic function must have an x-intercept.
C A quadratic function can have two y-intercepts.
D A quadratic function with no zeros has no x-intercepts.
E A quadratic function with no zeros has no vertex.

5. Which of the following is equivalent to the expression $(6 + 2i)(i - 4)$?

A $-2i - 26$ **B** -24
C $-4i - 26$ **D** $-2i - 22$
E $2\sqrt{-1} - 26$

6. Which of the following is *not* true?

A The expression $x^2 + 6x + 9$ is a perfect-square trinomial.
B The expression $x^2 + bx + c$ is a perfect-square trinomial if $c = \left(\frac{b}{2}\right)^2$.
C The expression $x^2 + 9x + 27$ is not a perfect square.
D $(2x + 3)^2$ is a binomial square.
E The expression $ax^2 + bx + c$ is a perfect square only if c is a perfect square.

7. Which of the following equations are you solving if the quadratic formula you have is

$$x = \frac{-6 \pm \sqrt{(6)^2 - 4(-3)(7)}}{2(-3)}?$$

A $-3x^2 - 6x + 7 = 0$
B $-3x^2 + 6x + 7 = 0$
C $3x^2 + 6x + 7 = 0$
D $-3x^2 + 6x - 7 = 0$
E none of the above

For Exercises 8–10, compare the values in Column A and Column B. Choose the best answer.

A The value in Column A is greater.
B The value in Column B is greater.
C The two values are equal.
D The relationship cannot be determined on the basis of the information supplied.

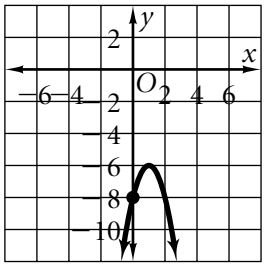
	Column A	Column B
8.	The minimum value of $f(x) = 4(x - 3)^2 + 5$	The maximum value of $f(x) = -4(x - 3)^2 + 5$
9.	$-(i^4)$	1
10.	$f(-4)$ if $f(x) = x^2 + 2$	$g(-3)$ if $g(x) = x^2 - 2x$

For Exercises 11–21, write your answer.

11. Find a quadratic model for this set of data.

x	−2	−1	0	1	2
$f(x)$	7	1	−1	1	7

12. Write the equation of this parabola in vertex form.



13. Solve the equation $x^2 + 2x = 24$ by factoring.

14. **Open-ended** Write an equation that can be solved by completing the square. Write the equation and the solution.

15. You have 225 ft of chicken wire to enclose a rectangular vegetable garden. Find the length of a side of the garden in feet that would give you the maximum area.

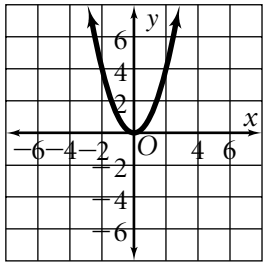
16. The graph of $y = x^2$ is shifted 5 units left and 1 unit down. Write an equation for the translated graph.

17. What is the value of x if $(2x - 14)^2 = 0$?

18. Simplify the expression $-i(i^3 + 3i)$.

19. If the expression $x^2 + 24x + c$ is a perfect square, what is the value of c?

20. What is the value of the discriminant for the equation of this graph?



21. Evaluate $h(3)$ if $h(x) = x^2 - 4x + 12$.