Chapter 4 Chapter Test [4-5 to 4-9]

Form G

Do you know HOW?

Simplify each expression.

1. $(3 + i) - (7 + 6i)$

2. $(3 - 4i)(5 + 2i)$

3. $(-4 - 9i) + (5 - 7i)$

4. $3\sqrt{-25} + 4$

Solve each quadratic equation.

5. $x^2 - 16 = 0$

6. $2x^2 - 3x - 11 = 0$

7. $x^2 + 3x - 10 = 0$

8. $3x^2 + 48 = 0$

Write each function in vertex form. Sketch the graph of the function and label its vertex.

9. $y = x^2 + 4x - 7$

10. $y = -x^2 + 4x - 1$

11. $y = 3x^2 + 18x$

12. $y = \dfrac{1}{2}x^2 - 5x + 12$

Chapter 4 Chapter Test [4-5 to 4-9] (continued)   *Form G*

Evaluate the discriminant of each equation. Determine how many real solutions each equation has.

12. $x^2 + 5x + 6 = 0$

13. $3x^2 - 4x + 3 = 0$

14. $-2x^2 - 5x + 4 = 0$

15. $16x^2 - 8x + 1 = 0$

Solve each system.

16. $\begin{cases} y = -x^2 + 5x + 1 \\ y = 2x - 3 \end{cases}$

17. $\begin{cases} y = x^2 - x + 2 \\ y = 2x^2 + x - 6 \end{cases}$

Solve the following systems of inequalities by graphing.

18. $\begin{cases} y < x^2 + 2x - 3 \\ y > x^2 - 9 \end{cases}$

19. $\begin{cases} y > x^2 + 3x - 4 \\ y < -x^2 - x + 2 \end{cases}$

Do you UNDERSTAND?

20. Open-Ended Write a complex number with an absolute value between 3 and 8.

BONUS QUESTION (5 points)

Anthony has 10 ft of framing and wants to use it to make the largest rectangular picture frame possible. Find the maximum area that can be enclosed by his frame.