Name _____ Date _____

3.2 3.3 Review Worksheet

All work should be done on separate paper.

In Exercises 1–3, find the square root of the number.

1. $3\sqrt{-25}$ **2.** $2\sqrt{-40}$ **3.** $4\sqrt{-54}$

In Exercises 4–7, find the values of *x* and *y* that satisfy the equation.

4. $2x - 3yi = 14 + 12i$ **5.** $\frac{1}{3}x - 6i = 8 - 3yi$

6. $22 + \frac{1}{5}yi = 2x - 2$ **7.** $-1 + 10i = -x + 3yi$

In Exercises 8–11, add or subtract. Write the answer in standard form.

8. $(9 + 6i) - (15 - 7i)$ **9.** $13 - (5 + i) + 7i$

10. $14 - (17 - 7i) + 8i$ **11.** $-4 + (9 - 2i) + 3i$

In Exercises 12 - 15, multiply. Write the answer in standard form.

12. $(4 + 7i)(5 + 2i)$ **13.** $(5 - 3i)(5 + 3i)$

14. $(10 - 7i)(10 + 7i)$ **15.** $(6 - 4i)^2$

In Exercises 16 and 17, find the zeros of the function.

16. $f(x) = -x^2 - 48$ **17.** $g(x) = -\frac{1}{4}x^2 - 13$

In Exercises 18 - 21, solve the equation using square roots. Check your solution(s).

18. $w^2 - 22w + 121 = 81$ **19.** $k^2 - 16k + 64 = -8$

20. $t^2 - 30t + 225 = -24$ **21.** $9p^2 + 6p + 1 = 12$

In Exercises 22 - 25, find the value of *c* that makes the expression a perfect square trinomial. Then write the expression as the square of a binomial.

22. $x^2 + 16x + c$ **23.** $x^2 + 7x + c$

24. $y^2 - 3y + c$ **25.** $y^2 + 20y + c$

In Exercises 26 - 29, solve the equation by completing the square. Remember, the leading coefficient MUST equal 1.

26. $q(q + 6) = 1$ **27.** $5h^2 - 5h - 15 = 0$

28. $3x^2 + 24x + 15 = 0$ **29.** $3y(y - 8) = -36$

In Exercises 30 - 33, write the quadratic function in vertex form. Then identify the vertex.

30. $f(x) = x^2 + 18x + 100$

31. $g(x) = x^2 - 2x - 26$

32. $h(x) = x^2 + 22x + 96$

33. $f(x) = x^2 - x + 2$

34. The height y (in feet) of a basketball t seconds after it is thrown can be modeled by the function $y = -16t^2 + 32t + 2$.

a. Find the maximum height of the basketball.

b. The basketball is caught in its descent when it is 7 feet above the ground. How long is the basketball in the air?