Name _____ Date _____

3.4 Practice A

In Exercises 1–8, solve the equation using the Quadratic Formula. Use a graphing calculator to check your solution(s).

1. $x^2 + 9x + 4 = 0$

2. $2x^2 - 2x - 4 = 0$

3. $2x^2 + 12x + 18 = 0$

4. $-4x^2 = 3x - 1$

5. $-3x^2 + 5x = 4$

6. $x^2 + 144 = 24x$

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

8. $6x^2 = 4x - 9$

In Exercises 9–12, find the discriminant of the quadratic equation and describe the number and type of solutions of the equation.

9. $x^2 - 4x + 1 = 0$

10. $x^2 + 10x + 25 = 0$

11. $3t^2 - 3t + 18 = 0$

12. $-x^2 - 2x + 3 = 0$

13. What are the complex solutions of the equation $2x^2 - 32x + 178 = 0$?

A. $8 + 20i, 8 - 20i$

B. $8 + 5i, 8 - 5i$

C. $32 + 5i, 32 - 5i$

D. $32 + 20i, 32 - 20i$

In Exercises 14 and 15, find a possible pair of integer values for *a* and *c* so that the quadratic equation has the given solution(s). Then write the equation.

14. $ax^2 + 8x + c = 0$; one real solution

15. $ax^2 - 5x + c = 0$; two imaginary solutions

In Exercises 16 and 17, use the Quadratic Formula to write a quadratic equation that has the given solutions.

16. $x = \dfrac{9 \pm \sqrt{-79}}{8}$

17. $x = \dfrac{-11 \pm \sqrt{97}}{-6}$

In Exercises 18–21, solve the quadratic equation using the Quadratic Formula. Then solve the equation using another method. Which method do you prefer? Explain.

18. $9x^2 + 4 = 12x$

19. $4x^2 - 13x + 3 = 0$

20. $x^2 - 12x + 9 = 0$

21. $x^2 - 4x = 12$

22. Suppose a quadratic equation has the form $x^2 + x + c = 0$. Show that the constant c must be less than $\frac{1}{4}$ in order for the equation to have two real solutions.