4-9 Practice

Form G

Quadratic Systems

Solve each system by graphing. Check your answers.

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

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

3. $\begin{cases} y = -2x^2 + 4x + 3 \\ y = 2x - 1 \end{cases}$

4. $\begin{cases} y = 2x^2 - 5x \\ y = -3x + 4 \end{cases}$

Solve each system by substitution. Check your answers.

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

6. $\begin{cases} y = -x^2 + x + 12 \\ y = 2x - 8 \end{cases}$

7. $\begin{cases} y = x^2 - 2x - 3 \\ y = 2x - 3 \end{cases}$

8. $\begin{cases} y = 2x^2 - 5x + 6 \\ y = 3x - 2 \end{cases}$

9. $\begin{cases} y = -x^2 + 2x + 18 \\ y = 5x - 10 \end{cases}$

10. $\begin{cases} y = x^2 - 2x - 2 \\ y = -3x + 4 \end{cases}$

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

12. $\begin{cases} x + y = x^2 - 6 \\ x + y + 2 = 0 \end{cases}$

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

14. $\begin{cases} y + 4 = x^2 - 3x \\ y + 9 = 3x \end{cases}$

15. $\begin{cases} x^2 + y - 10 = 0 \\ x + y + 2 = 0 \end{cases}$

16. $\begin{cases} x + y = 7 \\ x^2 - y = -5x \end{cases}$

17. $\begin{cases} y + 5x = x^2 - 3 \\ y - 3x = -15 \end{cases}$

18. $\begin{cases} y - 2x = -x^2 - 4 \\ y + 2x = -1 \end{cases}$

4-9 Practice (continued) Form G

Quadratic Systems

Solve each system.

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

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

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

22. $\begin{cases} y = -x^2 + x + 2 \\ y = x^2 - 3x - 4 \end{cases}$

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

24. $\begin{cases} y = 2x^2 - 4 \\ y = x^2 - 4x + 1 \end{cases}$

Solve each system by graphing.

25. $\begin{cases} y < x^2 + 5 \\ y > 2x^2 - 4 \end{cases}$

26. $\begin{cases} y > x^2 - 4x \\ y < -x^2 + 6 \end{cases}$

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

28. $\begin{cases} y \le 4x^2 + 4x \\ y \ge x^2 + 4x \end{cases}$

29. In business, a break-even point is the point (x, y) at which the graphs of the revenue and cost functions intersect. For one manufacturing company, the revenue from producing x items is given by the function $y = 2x + 12$ and the cost of producing x items is given by $y = -x^2 + 10x + 5$. Find all break-even points.

30. Two skaters are practicing at the same time on the same rink. One skater follows the path $y = -2x + 32$, while the other skater follows the curve $y = -2x^2 + 18x$. Find all points where they might collide if they are not careful.