

8.5 Practice Set

Find the intersection points for each of the following pairs of relations by solving the system of nonlinear equations.

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

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

3.
$$\begin{cases} y = \sqrt{x - 3} \\ y = |x| \end{cases}$$

4.
$$\begin{cases} y = \frac{1}{x^2} \\ -8x + y = 0 \end{cases}$$

5.
$$\begin{cases} y = \log_2(x - 1) + 1 \\ y = -\log_2(x + 3) - 1 \end{cases}$$

6.
$$\begin{cases} (x - 1)^2 + y^2 = 4 \\ x^2 + y^2 = 9 \end{cases}$$

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

8.
$$\begin{cases} y = -x^2 + 4 \\ y = x^2 - 4 \end{cases}$$

9.
$$\begin{cases} y = (x - 1)^3 - 2 \\ y = -x + 9 \end{cases}$$

10.
$$\begin{cases} y = -|x + 3| + 1 \\ y = \frac{1}{x} \end{cases}$$

Distributed Practice Problems

Solve each of the following equations and inequalities.

11. $y^2 - 6y = 3$

12. $-|3x - 5| + 2 = -14$

13. $\log_3(x - 1) - \log_3 x = 4$

14. $7^{3x+1} = 4^x$

15. $\sqrt{3m - 4} + 5 = 8$

16. $5x^4 - 5x^3 - 45x^2 = -45x$

17. $(\log x)^2 - 8 \log x = 9$

18. $\frac{x^2+5x+6}{x^2-4} > 0$

19. $\frac{x}{x+2} \leq \frac{1}{x}$

20. $|-2k + 15| - 3 \geq 8$