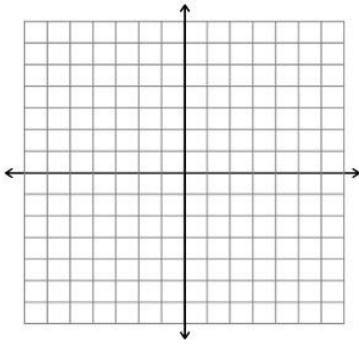


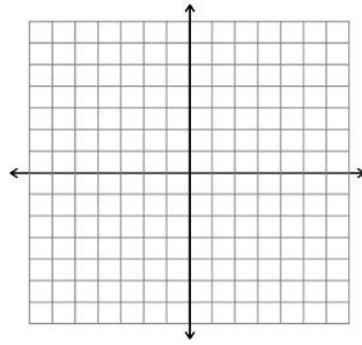
Solving Quadratic Systems

Graph the system, then estimate the solution(s).

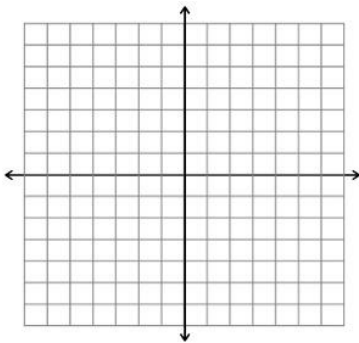
$$1. \begin{cases} y = (x-3)^2 + 2 \\ y = 3 \end{cases}$$



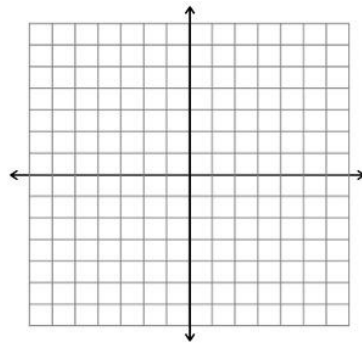
$$2. \begin{cases} y = x^2 + 1 \\ y = x + 1 \end{cases}$$



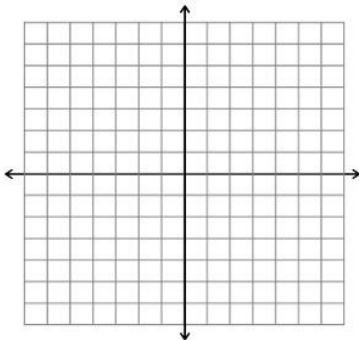
$$3. \begin{cases} y = x^2 - 6x + 9 \\ y = x - 1 \end{cases}$$



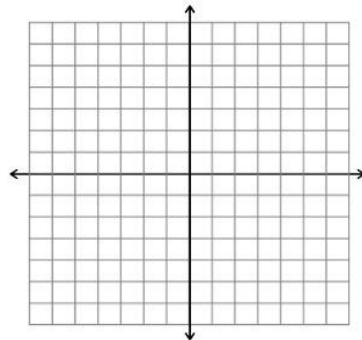
$$4. \begin{cases} y = 2(x-1)^2 \\ y = 2x + 2 \end{cases}$$



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



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



Solve the quadratic systems algebraically.

$$7. \begin{cases} y = x + 7 \\ y = x^2 + 6x + 11 \end{cases}$$

$$8. \begin{cases} y = x^2 - 4 \\ y = 6x - 13 \end{cases}$$

$$9. \begin{cases} y = 3x^2 - 2x + 1 \\ y = 2x^2 + 3x - 5 \end{cases}$$

$$10. \begin{cases} y = 2x^2 - 8x + 9 \\ y = x^2 - 4x + 6 \end{cases}$$

$$11. \begin{cases} y = -x^2 + 4x + 1 \\ y = 2x^2 - 8x + 10 \end{cases}$$

$$12. \begin{cases} y = 2x^2 - 3x + 5 \\ y = x^2 + x + 3 \end{cases}$$

$$13. \begin{cases} y = 2x^2 - 4x + 2 \\ -2x + y = 2 \end{cases}$$

$$14. \begin{cases} 2x + y = 6 \\ y = -2x^2 + 4x + 2 \end{cases}$$

15. A city has two public skate parks. Since opening day, attendance at Park A has increased steadily, while attendance at Park B rose and then fell. Equations modeling the daily attendance y are shown below, where x is the number of days since opening day. On what day(s) was the attendance the same at both parks? What was the attendance?

Park A: $y = 28x + 6$

Park B: $y = -x^2 + 39x + 66$

16. The equations below model the numbers y of two cell phone models sold x days after both phones were introduced. On what day(s) did the company sell the same number of each phone? How many of each type were sold?

Cell Phone A: $y = 191x - 28$

Cell Phone B: $y = -x^2 + 200x + 24$

17. The population (in thousands of people) of two cities are modeled by the functions below, where x represents the number of years since 2000. In what year(s) did the two cities have the same population? What was that population?

City A: $f(x) = 0.01x^2 - x + 35$

City B: $g(x) = 30 - 0.1x$